Department of Conservation and Recreation
Division of State Parks and Recreation

Southern Berkshire District Draft Forest Resource Management Plan

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Southern Berkshire District Forest Resource Management Plan

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Executive Summary

The Southern Berkshire (SBK) District Forest Resource Management Plan (FRMP) is developed in consideration of, and consistent with, the ***Landscape Assessment and Forest Management Framework for the Berkshire Eco-regions***, April 2006, which contains important information on the physical and natural resources, relevant natural resource public issues, and natural resources recommendations for the Berkshire region's public and private forestlands. The FRMP provides strategic forestry management direction for 19 Division of State Parks and Recreation (DSPR) properties on approximately 42,965 acres in an ecological, economic, and socially sustainable manner.

The most important feature of the FRMP is the coordination and participation in the development of the plan by the public and DCR and other state agency staff. The following is a summary of the public outreach process:

- **Forest Reserve** deliberations: three public meetings and a formal public comment period
- **Berkshire Landscape Assessment** deliberations: two public meetings and a formal public comment period
- **Southern Berkshire District** deliberations: three public meetings and a formal public comment period

Public notification of meetings and public comment opportunities occurred through mailings (over 900 on mailing list), press releases, Environmental Monitor publications, e-mail group mailings, and posting of information on the DCR Bureau of Forestry web pages. Pre-planning public issues are located in section *IV. Public Issues and Opportunities* and responses to all written public comments in *Appendix K. Public Comments*.

The FRMP uses the following key guiding principles:

- Provides clear strategic implementation and monitoring direction
- Is predicated on adaptive management principles in which adjustments and changes to the plan will be made as new information is available
- Provides a long-term sustainable strategy (105 years) and short-term (next 15 years) implementation schedule
- Meets all pertinent legal mandates and Forest Stewardship Council green certification standards
- Integrates all forest resources, activities, and uses, into a comprehensive sustainable forest resource management, activity, and use strategy
- Was developed with the best information and data available

This FRMP was prepared in part to meet all pertinent legal mandates and Forest Stewardship Council green certification standards. The Forest Stewardship Council (FSC) shall promote environmentally appropriate, socially beneficial, and economically viable management of the world's forests.

- Environmentally appropriate forest management ensures that the harvest of timber and non-timber products maintains the forest's biodiversity, productivity and ecological processes.
- Socially beneficial forest management helps both local people and society to enjoy long-term benefits, and provides strong incentives to local people to sustain the forest resources and adhere to long-term management plans.
- Economically viable forest management means that forest operations are structured and managed as to be sufficiently profitable, without generating financial profit at the expense of the forest resources, the ecosystem or affected communities. The tension between the need to generate adequate financial returns and the principles of responsible forest operations can be reduced through efforts to market forest products for their best value.

Forest management planning and FRMPs are an important component of the overall framework of DCR's Resource Management Planning (RMP) Program. The RMP Program is located within the Division of Planning and Engineering, and works across agency divisions, bureaus and programs to develop the RMP Program and to coordinate with the DCR Stewardship Council regarding program development and the adoption of RMPs. FRMPs prepared by the Bureaus of Forest Fire Control and Forestry will be integrated into Baseline RMPs prepared by the RMP Program.

The following summarizes the key strategic points in this FRMP:

Climate Change and Carbon Sequestration

Climate change and carbon sequestration is one of the key emerging forest resource issues on a local, regional, national and global scale. According to the Massachusetts Climate Protection Plan (See Appendix J): "Climate change could have serious impacts on the state's diverse ecosystems, native species and may encourage the spread of non-native species." The SBK Plan recognizes climate change as a result of increases in temperature due to elevated, human-induced levels of carbon dioxide from the burning of fossil fuels.[1] As temperatures increase globally, Massachusetts forest species composition will undoubtedly change over time. It is predicted from vegetation models that the range of forest communities will slowly shift in a northerly direction, resulting in a Massachusetts forest that is more typical of forests currently found further south. Other changes from natural disturbances will likely result in the increased frequency and intensity of fires, insect and disease infestations, and erratic weather patterns such as damaging winds, drought, flood, and ice damage.

[1] See *Forests, Carbon and Climate Change*, 2007

Forests play a major role in keeping carbon dioxide out of the earth's atmosphere through carbon sequestration. This is especially important because it is estimated that forests contain approximately 75% of the earth's biomass.

The SBK Plan integrates the following strategies in consideration of climate change and improving the rates of carbon sequestration:

- DSPR system lands will remain as forest and it is anticipated that new land acquisitions will continue into the future

- Designates a forest reserve system (23% of SBK DSPR system lands) that serve as carbon sinks (store more carbon than is released

- Maintain the full suite of biological diversity by focusing on sustainability and ecosystem composition, structure, and function in the form of native species, vegetative communities, age classes, distribution, and forest structures

- Provides the opportunity to offset carbon dioxide sources (concrete, steel , plastics, other synthetic products and forest products shipped from afar through the sustainable use of local forest products) thus storing carbon in lumber and other wood products

- Provides the opportunity to offset carbon dioxide sources that are not renewable energy sources (coal, oil, and gas) to local renewable and more carbon neutral forest energy sources

- Manages forests in longer rotations (105 and 150 year cycles) designed to increase carbon sequestration as opposed to shorter commercial and economic rotations (70 to 80 year cycles) designed to maximize revenue and forest products

- Thins forests with emphasis on reducing forest densities which are overstocked to keep trees vigorous, enhance carbon sequestration capacity, and reduce tree mortality and forest senescence

- Addresses the problem of non-native species, which will likely increase with continued climatic change

Biological Diversity:

Biological diversity is provided for by:

- Protecting rare species through proper management and maintenance of rare species habitat including mandatory consultation with the Natural Heritage and Endangered Species Program on all vegetation and/or ground disturbing projects within known priority or estimated habitat for rare species
- Rare species Conservation Management Practices guidelines will be followed within known priority or estimated habitat for rare species

- Establishing the approximately 7,149 acre Mount Washington complex large-scale Forest Reserve and approximately 2,546 acres of small-scale Forest Reserves distributed throughout the rest of the district
- Forest Reserves will provide a late-successional native forest structure where forest succession and natural disturbances are allowed to proceed relatively free of human intervention
- Allowing human use provided that uses and activities are consistent with providing a natural relatively undisturbed landscape
- Establishing approximately 4,000 acres of extended rotation forest vegetation that is managed according to uneven aged silvicultural principles to promote healthy, multi-age, large stand areas with complex structure that complement Forest Reserves, trail and road corridors, aquatic corridors and buffers, and rare species habitat, where possible
- Protecting aquatic resources such as lakes, rivers, streams, riparian areas, wetlands, and vernal pools, by establishing and properly managing these areas and their associated buffer or filter strips
- Establishing approximately 2,800 acres of early successional habitat in each 15 year planning period
- Managing all SBK lands for appropriate native species by inventorying and scheduling for the removal of non-native vegetation
- Providing direction for the retention and maintenance of complex forest structures such as legacy, wildlife, and den trees, and the retention of coarse woody debris where vegetation management activities occur

Recreation Activities and Uses:

The FRMP does not directly address recreational uses and policies. It does take into consideration the recreational facilities and uses that occur within the SBK State Forest and Park system lands such as camping, hiking, fishing, cross-country skiing, picnicking, snowmobiling, driving for pleasure, etc. The following are highlights of the forest management direction as it relates to recreational uses:

- Forest management objectives are sensitive to the DSPR trail system and uses by managing the vegetation in the trail corridors ensuring that they are maintained to DSPR standards consistent with FRMP objectives
- Unauthorized trails should be evaluated for potential removal or inclusion into the DSPR trail system
- The Appalachian National Scenic Trail will be managed according to established agreements and management plans
- Snowmobile use is allowed on designated trails when there is snow cover
- ORV use is allowed on designated trails in Beartown State Forest and Tolland State Forest pending results of a statewide study. ORV use is prohibited on all other DSPR system lands pending the results of the study.
- Special uses must follow the DSPR Special Use process, and be reviewed for their compatibility with DSPR Forest Resource Management Plan direction, including the consideration of environmental values, economic feasibility, and determination of social and economic benefits
- Special features consideration

Cultural Resources:

Cultural resources are identified and evaluated for significance. Appropriate site plans are developed to protect and maintain significant cultural resources. In some cases, cultural resources may be enhanced through specific management activities or presented to the visiting public through interpretative, educational and programmatic formats.

Roads, Trails and Boundaries:

There are approximately 207 miles of roads and trails within the SBK properties. Generally, roads and trails are minimally maintained, resulting in unsafe access and degradation of water quality due to soil erosion and sedimentation. Some road and trail maintenance and re-construction is occurring through forest management activities, volunteers, and occasionally as part of DSPR projects. DSPR's goal is that the transportation network will be safe and environmentally sound. In addition, the network should have a minimum impact on the natural resources of our forest and park system while serving public safety needs and allowing visitors to enjoy and experience these resources.

There are approximately 276 miles of DSPR property boundaries (not including the newly acquired Spectacle Farm property). Approximately 72 miles of boundaries were recently maintained from FY 2004 to FY 2007. There are a small but undetermined number of miles of boundary that may need professional surveys. DSPR's goal is to locate and post all boundaries and maintain them on a 10-year cycle.

Vegetation:

The SBK State Forest and Parks system lands are heavily vegetated and are primarily composed of 60+ year old forests (approximately 27,500 acres or 65% of total area). The forest in general is presently in relatively good health; however, tree mortality is occurring at an increasing rate due to composition, age, and density of the forests. Presently, the forest is composed predominately of northern hardwoods, red oak, hemlock, and Norway spruce. There are approximately 450 million board feet of standing timber and a gross growth of approximately 13 million board feet per year. The mortality is approximately 5.3 million board feet per year.

The vegetation management within the Active Forest Resource Management Areas shall be prioritized as follows:

- Meet rare species habitat and biodiversity goals
- Reduce the risks of catastrophic disturbances such as climate change and wildfires
- Restore and maintain native ecosystems
- Restore and maintain forest health
- Provide a sustainable flow of forest products and appropriate native biodiversity by balancing the age classes for each forest type

Areas selected for vegetation management to meet the above goals will be further prioritized by:

- Completing regeneration harvests in stands that have had previous work to establish or release existing regeneration
- Regenerating stands that are at imminent risk of mortality from insects, disease, fire, etc
- Establishing regeneration in poorly stocked stands or in stands that are currently stocked with species that are ill suited to the site
- Improving low quality stands
- Regenerating mature stands
- Thinning overstocked stands

Approximately 0.5 percent (196 acres) of the entire SBK State Forest and Park system lands (42,965 acres) is the annual ceiling for regeneration (27 acres of uneven-age management and 169 acres of even-age management). The preferred even-age management method is shelterwood with reserve wildlife and legacy trees. There is an equal annual ceiling of 169 acres of preparatory shelterwood treatment designed to stimulate a young forest of desirable species. The annual ceiling for thinning overstocked stands is estimated at 770 acres. Thinning is designed to maintain the forest health, capture imminent mortality, sequester carbon, improve the composition and quality of the forest vegetation, improve forest biological capability, and provide modest amounts of forest products and bio-mass.

The FRMP calls for approximately 19% (8,023 acres) of the land in the SBK District to be managed under a 150 year extended rotation systems.

Presently there is a capacity to implement to the FRMP standards approximately 20 percent (225 acres) per year of the annual sustainability ceiling of 1,135 acres.

Inventory, Monitoring, and Evaluation:

The FRMP was developed in consideration of future inventory, monitoring, and evaluation, and is designed to improve the FRMP over time. The following summarizes the key inventory, monitoring, and evaluation requirements dependant on the availability of funding:

- Vegetation, cultural resources, rare species, invasive species, boundaries, roads, recreation and uses, etc. data should continue to be collected over time
- All projects upon completion and after 5 years of completion should be sampled for meeting FRMP requirements, effectiveness, and impacts
- Landscape ecological monitoring, in cooperation with the University of Massachusetts and other partners, designed to evaluate and compare Forest Reserve and active management should be established to assess management techniques at the ecological landscape, site and species level

Outputs and Costs:

The FRMP was developed in consideration of potential multiple public benefits while maintaining affordable costs for the first implementation phase (next 15 years). The following summarizes the major public outputs and associated costs:

Annual Sustainable Allowable (Ceiling) Forest Product Outputs:

Treatment	Acres	Cords	MBF
Extended Rotation[2]	0	0	0
Hardwood Uneven Age Management	27	162	378
Hardwood Final Removal of Overstory	100	672	1049
Softwood Final Removal of Overstory	69	591	1201
Hardwood Establish Regeneration	100	452	352
Softwood Establish Regeneration	69	385	394
Hardwood Thinning*	536	1227	858
Softwood Thinning*	234	695	632
Grand Total	**1,135**	**4,184**	**4,863**

15 Year Planning Cycle (Ceiling) Outputs (2007 – 2021):

Treatment	Acres	Cords	MBF
Extended Rotation	0	0	0
Hardwood Uneven Age Management	405	2430	5670
Hardwood Final Removal of Overstory	1500	10080	15735
Softwood Final Removal of Overstory	1035	8865	18015
Hardwood Establish Regeneration	1500	6780	5280
Softwood Establish Regeneration	1035	5775	5910
Hardwood Thinning*	8040	18412	12864
Softwood Thinning*	3510	10425	9477
Grand Total	**17,025**	**62,766**	**72,951**

Volumes calculated from CFI inventory data.

* - Thinning is based on all stands within the Active Management Area that are at or above the "A" stocking level (overstocked stand)

Estimated Annual Revenue $655,000

[2] Regeneration is not scheduled during this 15 year planning period, however, thinnings may be scheduled to maintain species composition, growth rates and tree vigor

Estimated Annual Costs (based on FY 05):

Annual Operating Costs		**$233,000**
Backlog Annual Boundary Surveying	**$25,000**	
Backlog Road Maintenance Needs	**$150,000**	
10-year CFI Inventory (2008)		**$30,000**
Total Costs		
$438,000		

I. Forest Resource Management Plan Process

This section summarizes the Forest Resource Management Planning process, the Forest Resource Management Plan (FRMP) format, and gives the reader guidance on how to use the plan effectively.

Planning Process and Outline

The Forest Resource Management Planning process is based on the concept of stepping down in scales: from the regional landscape, to the Southern Berkshire (SBK) District, to the individual forest and park or reservation. Overall, the plan is based on meeting Massachusetts' statutes, enabling legislation and regulations that establish the Department of Conservation (DCR), the State Forest and Parks system, and the Bureau of Forestry management forestry program. "Green Certification" sustainability conditions and requirements further guide the planning process to ensure the sustainability and adequate management of the Commonwealth's natural resources, activities, and uses for the long-term.

The plan is prepared in consideration with the baseline natural resource information, public issues, and recommendations contained within the *"Landscape Assessment and Forest Management Framework for the Berkshire Ecoregions".*

The planning process identified public issues and opportunities for the Berkshire Highlands and the Taconic Mountains and Marble Valley Ecoregions and the Southern Berkshire District. This plan contributes towards meeting the public needs, wants, and expectations of the State Forest and Park system.

The District Section, which follows the public issues, introduces the DCR-DSPR lands contained within the Southern Berkshire. This section contains the present resource and use conditions, desired conditions, and management guidelines designed to guide recreation and natural resource managers.

There is more detailed information on the District section below. After the District Section, there is information on measurable outputs (public expectations), inventory, monitoring and evaluation direction, and public involvement documentation. Finally, the appendices include detailed information and supporting documentation.

District Section

The district section uses a filtering approach to identify three (3) management areas (Reserves, Intensive Use Areas, and the Active Forest Management Areas).

The Reserve areas consist of small and large-scale reserves where passive management will occur. The Intensive Use Areas consist of developed facilities and structures such as administration sites, campgrounds, playgrounds, parking lots, etc. The Active Forest Management Areas are

places where vegetation management will be applied to meet the biodiversity and forest structural goals of this plan.

Each section provides information on the **present condition**, the **desired condition**, and the **management guidelines** designed to reach the desired condition.

Present Condition

The present condition information provides baseline information on the resource in text and/or table form. It is also where map references for the resource may be found. These present conditions are intentionally broad as they apply to all the DCR-DSPR lands in the district.

Desired Condition

The desired condition is a general goal statement describing the resource condition that can be achieved by full implementation of this plan.

Management Guidelines

One of the most important outputs of the planning process is the establishment of management guidelines. Management guidelines are the means by which the desired conditions can be achieved. The management guidelines are what the natural resource mangers will use to prioritize, guide, and implement management activities. By following the management guidelines, the managers can base their daily work on the planning framework, in consideration of the larger landscape and regional and local issues, and with DSPR-wide consistency. Although the plan provides flexibility for on-the-ground decisions, the management guidelines serve as a check to meet the specific goals and standards set forth in this plan. The management guidelines in the main body of this plan apply to all DSPR lands in the Southern Berkshire District.

Maps & Tables

Most of the plan sections have maps and tables that support the text information. District level maps display information on a landscape or district level. These maps are located in Appendix A. Property level maps display information on a State Park, Forest, or Reservation level. Property level maps are located in Appendix B.

Additional Appendices

Following the map appendices are additional appendices containing the public comments and response, glossary, statutory policies, references, and other supporting materials.

Intended Users

This plan is designed for use by a variety of audiences. Decision makers may be interested in the planning process, public involvement, land and resource allocation, expected outcomes, and costs and benefits. The public might be most interested in the personally important public issues,

zoning and management area land allocation, where uses and activities may or may not occur, and management guidelines. The public can consider the Forest Resource Management Plan to be a social contract and commitment on how the State Forest and Parks system lands will be managed.

While this is a public document developed in consideration of public comment, its ultimate purpose is to implement sustainable land and forest management carried out by DCR staff. Managers will use this plan to identify priorities and activities. The value of this plan will ultimately be judged by the careful and responsible implementation by the recreation and natural resource managers who are the stewards of the Commonwealth's valuable public resources that are held and managed in the public's trust.

II. Purpose, Need, and Guiding Principles

The Department of Conservation and Recreation (DCR) Division of State Parks and Recreation (DSPR), is responsible for the stewardship and management of over 285,000 acres of state forests, parks, and reservations. As stated in MGL Chapter 21, Section 1:

> *It shall be the duty of said department to exercise general care and oversight of the natural resources of the commonwealth and of its adjacent waters; to make investigations and to carry on research relative thereto; and to propose and carry out measures for the protection, conservation, control, use, increase, and development thereof.*

General care and oversight will be the result of a coordinated management guidelines for sustainable forestry as described in MGL Chapter 21: Section 2F:

> *The directors of the divisions of state parks and recreation and urban parks and recreation shall work in cooperation with the director of the division of fisheries and wildlife within the department of fish and game to establish coordinated management guidelines for sustainable forestry practices on public forest lands within the departments of conservation and recreation and on private forest lands.*

These lands are managed using the principles of ecosystem management to meet the Department's responsibilities and the public's expectations under MGL Chapter 132, which states that:

> *the* ***public welfare requires the rehabilitation, maintenance, and protection of forest lands*** *for the purpose of conserving water, preventing floods and soil erosion, improving the conditions for wildlife and recreation, protecting and improving air and water quality, and providing a continuing and increasing supply of forest products for public consumption, farm use, and for the wood-using industries of the commonwealth.*

This plan partially meets the intent of MGL Chapter 21 Section 2F regarding the preparation of management plans. This Forest Resource Management Plan (FRMP) provides strategic sustainable forest management direction for 19 DSPR system properties on 42,965 acres[3] in the Southern Berkshire (SBK) District. The purpose of this FRMP is to:

- Develop a long-term strategy (105 years) for the sustainable management of the SBK lands
- Develop a short-term (next 15 years) implementation schedule to meet the desired conditions of this plan
- Provide resource management implementation and monitoring guidance
- Meet Forest Stewardship Council green certification standards

On May 11th 2004, the State of Massachusetts (MA) received Forest Stewardship Council (FSC) endorsed forest certification for the State lands managed by the principal agencies of the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA):

- Department of Recreation and Conservation (DCR), Division of State Parks and Recreation (DSPR) – 285,000 acres
- Department of Fish and Game (DFG) – 110,000 acres
- DCR, Division of Water Supply Protection (DWSP) – 45,000 acres
- Re-Certification of the Quabbin Reservoir (DCR–DWSP) – 59,000 acres

Under the sponsorship of the FSC, Scientific Certification Systems (SCS) promotes responsible forest management by certifying environmentally appropriate, socially beneficial, and economically viable forest management. Consumers purchasing products bearing the FSC and SCS labels can be assured that their wood products come from forests that have been responsibly managed to FSC standards.

The goals of certification are:

- *Improve forest management practices on state forestlands*
- *Identify opportunities for coordination of forest management among the three state forest management agencies*
- *Encourage improvements in private forestland practices, by providing examples and building toward market incentives for verified sustainable management practices*
- *Improve public understanding and confidence of active forest management practices on state forestlands, by providing an independent, FSC-accredited audit of those*
- *Increase timber revenues through increasing sustainable forestry and access*
- *to Green Certification*

The Forest Stewardship Council is an international organization that evaluates, accredits, and monitors independent forest product certifiers. Scientific Certification Systems (SCS) is

[3] Acres used in this report were the best available at the time of this writing

accredited as a certifier by the Forest Stewardship Council and uses an accredited set of standards based on the FSC principals and criteria in its evaluation activities.

The FRMP is needed to:

- Meet the Commonwealth of Massachusetts' forest management legal mandates and strategic goals and objectives (See Appendix H)
- Address the forest resource management issues identified by the public
- Inform the public on how the forest resources in the SBK district shall be managed
- Provide comprehensive long-term sustainable forest management guidance and specific short-term implementation and monitoring direction to land managers
- Provide a framework for a variety of sustainable forest uses and activities and integrate within that framework the sustainable management of wildlife, rare plants and animals, soils, water, and cultural resources

The FRMP was developed with the best information and data available and designed to be prepared based on the following planning principles:

- Consider the larger landscape scale patterns and surrounding activities
- Be adaptable and change over time as new biological and social conditions and information become available
- Consider ecological, social, and economic factors to determine how best to manage the natural resources and uses
- Conduct resource management in a biologically and economically sustainable and environmentally sensitive
- Focus on providing clear strategic implementation and monitoring direction
- Describe key present conditions, desired conditions, goals, and objectives
- Coordinate with recreational planning to produce a balanced resource protection strategy

Forest management planning and FRMPs are an important component of the overall framework of DCR's Resource Management Planning (RMP) Program. DCR's RMP Program is based upon M.G.L. Chapter 21: Section 2F, which requires DCR to develop resource management plans for all agency reservations, parks and forests. The legislation states that resource management plans shall include guidelines for operations and land stewardship, shall provide for the protection of natural and cultural resources, and shall ensure consistency between recreation, resource protection, and sustainable forest management. The RMP Program is located within the Office of Natural Resources and works across agency divisions, bureaus and programs to develop the RMP Program and to coordinate with the DCR Stewardship Council regarding program development and the adoption of RMPs. FRMPs prepared by the Bureau of Forest Fire Control and Forestry will be integrated into RMPs as RMPs are prepared and completed for any given DCR reservation, park or forest. For more information about the RMP Program, please consult the following web page: http://www.mass.gov/dcr/stewardship/rmp/.

III. The SBK Regional Landscape

The Southern Berkshire District is located in four ecoregions (as fully described in the *"Landscape Assessment and Forest Management Framework for the Berkshire Ecoregion`s").* The higher elevations and corresponding cooler climate of the Berkshires lead to vegetation patterns more typical of northern New England with spruce-fir and northern hardwood forests dominating the landscape. Lakes and ponds are relatively abundant in the area.

The SBK district drains into four different watersheds. The percentage of the district landscape draining into each is as follows: 50% Housatonic, 28% Farmington, 19% Westfield and 3% drains into the Hudson River watershed.

The Housatonic basin occupies most of the southwest corner of the state and is known for its marble outcrops that create lime rich ponds, streams, and wetlands. From cool, rich mesic forests to calcareous fens on the broad, smoothly rolling Housatonic Valley floor, the basin supports a variety of important and uncommon natural communities and habitats for its many rare species. Particularly distinctive of the watershed, and important state wide, are marl ponds and slow hard water streams in beaver-inhabited wetlands. Much less of the lowland, where many of the rare species occur, is protected than are the higher elevation, forested, parts of the watershed. Although the Housatonic is regulated by power plants and reservoirs, and is diverted for municipal water supplies, a minimum low flow is maintained. The main stem of the Housatonic is relatively low gradient and meanders through agricultural lowlands. There are multiple dams in the higher gradient portion north of Great Barrington. Only a relatively small acreage remains of formerly large floodplain forests. Moderate flowing waters of the main stem and some tributaries support mussels on sand and gravel substrates. Most of the tributaries are fast flowing in the hills, then slowly pass through broad wetlands once they reach the valley floor. The cold, well oxygenated upper waters support a diverse native fish community and the invertebrates many of them depend on.

The Farmington and Westfield Rivers drain east through rugged terrain from the Berkshire Plateau into the flatter Connecticut Valley. The area is sparsely populated, with large areas of unfragmented forest blocks. The West Branch of the Westfield is the largest entirely unmanaged river in the state. Although a minimum flow is maintained in the other branches of both the Westfield and Farmington, they are regulated by dams, reservoirs and diversions for municipal water supply. Although the presence of dams and impoundments that collect silts and finer sands limits mussel habitat, mussels are found in some of the moderately flowing portions of streams where there is firm sand and cobble substrate. High energy riverbanks and riverside rock outcrop communities are important along these quickly flowing rivers. These ledge outcrops and cobble-bottoms provide distinctive habitat for rare aquatic plants. Cold water flowing rapidly over rocky substratesprovides important habitat for diverse communities of fish and bottom dwelling invertebrates.

The heavily forested Hudson watershed includes Mt. Greylock, the highest elevation in Massachusetts, the low, flatter Hoosic River valley, and the steep terrain of the Taconic Mountains. Development is focused around the moderate gradient valley. Groundwater withdrawals, industrial use, and flood control have altered the natural flow regime of the river.

The north flowing Hoosic provides a corridor for northern species to reach the cool high elevation areas that they need. Very steep headwater streams, rough terrain, lime rich lowlands, and associated variety in vegetation characterize the area. Spruce and fir mixed with northern hardwoods and calcium rich wetlands and ponds in the lowlands are distinctive habitats found in the Hudson basin. Shallow calcareous ponds provide habitat that is uncommon in the eastern portion of the state for aquatic plants and other aquatic organisms.

Approximately 39% (131,002 acres) of the land in the SBK Berkshire District Landscape is protected (fee ownership or conservation restrictions held by state, federal, municipal government, or non-governmental conservation organizations). The present landscape is characterized by forests with dispersed, sparse residential development. Population is concentrated in the cities of Lee and Great Barrington in the western portion of the SBK district, and Westfield on the eastern edge of the district, but like the rest of the state, modern social issues are resulting in an increasingly more dispersed development pattern throughout the district.

The structure and composition of today's forest in this region, on a landscape scale, is heavily influenced by past land use, particularly agricultural use dating from colonial times, subsequent farm abandonment, and past logging practices. Soil cation depletion and a number of insect and disease disturbances also affect the forest in this area.

The estimated population (based on the 2000 U.S. Census) of the Berkshire Ecoregions is ~300,000. Population estimates for the 70 communities in the Berkshire Ecoregions range from 93 to 45,793. Many of these communities are small towns. Half (35) of all communities in the Berkshire Ecoregions have populations of less than 1,500. The cities in the Berkshire Ecoregions with the largest population are: Pittsfield (45,793), Westfield (40,072), Northampton (28,978), and North Adams (14,681). The highest population densities are in Pittsfield (1,194/sq. mi.) and Easthampton (1,159/sq. mi.), followed by Greenfield (859/sq. mi.), Northampton (850/sq. mi.), Westfield (824/sq. mi), and North Adams (822/sq. mi.). As is typical of small rural communities, residential development is often dispersed across the landscape, meaning that many residents live in close proximity to (and often surrounded by) the forest. This results in a different relationship to and understanding of the natural world than is typical of more urban dwellers. Communities in the Berkshire Ecoregions grew by an average of just under 12% from 1980 to 2000 (versus a statewide average of 18%).

The amount of developed land in the 70 communities in the Berkshire Ecoregions increased by approximately 50% from 1971 to 1999, with 19 communities experiencing greater than 70% increases. Build-out analyses conducted by EOEEA several years ago indicates that the population in the 70 communities could more than triple if all available buildable land was developed.

One result of the recent population growth and development trends is the further subdivision of large forested tracts into smaller units. Approximately 28% of the forestland in the Berkshire Ecoregion is publicly-owned. While this is somewhat higher than the state as a whole (in which about 24% is publicly-owned) (Petersen, 2000), the majority of the forest land is still privately owned.

It is estimated that the number of landowners with fewer than 50 acres of timberland has more than doubled since 1973 (USDA/FS, 2002) in Massachusetts. This can have a strong influence on how our forestland is managed since owners of relatively small blocks of forest are less likely to manage their land for forest products. They may also be more reluctant to allow others on their land for hunting, fishing and other recreational activities, thereby increasing the pressure on the public owned lands to meet these demands.

Massachusetts is the third most densely populated state yet it has the eighth highest percentage of forest cover. Massachusetts has long recognized that the state's extensive forests furnish a broad array of benefits that support our quality of life. The state's forest ecosystems provide habitat for wildlife, a resource base for timber production, a wide range of opportunities for recreation, a natural filter to purify the air and water, and a vital source of aesthetic pleasure. As development rates have outpaced population growth over the past four decades, the state has sought ways to ensure that forest resources are used in a sustainable manner.

Today, however, an important issue in the form of global climate change is emerging. To address global climate change, sustainability and ecosystem composition, structure and function needs to be fully integrated into this planning process. The forest plays a beneficial and crucial role in ameliorating climate change through carbon sequestration. Carbon dioxide and carbon are key components of soil, the atmosphere, the ocean, plants, and animals, and constantly moves among and between these sinks (reservoirs) through natural and human-caused processes. This network of flows is called the global carbon cycle. For example, when forests grow, or wood decays, or soils are tilled, carbon is exchanged between land and the atmosphere.

Before the industrial revolution, levels of carbon dioxide and other greenhouse gases in the atmosphere were fairly constant: about the same amount of carbon was released to the atmosphere from the land or ocean as was returned to the land and ocean by other processes. However, human activities, including large-scale fossil fuel use and deforestation (changes in land use due to development and agriculture), have since perturbed this balance, causing carbon dioxide to accumulate in the atmosphere faster that it can be stored. A process that causes a net transfer of carbon to the atmosphere, such as burning coal, is called a carbon source. A process that causes a net removal of carbon from the atmosphere, such as when forests grow, is called a sink.

Carbon resource conservation strives to encourage activities that remove or keep more carbon out of the atmosphere and discourage activities that release carbon into the atmosphere. Massachusetts is studying the role of forests in climate change. Specifically, the state is promoting strategies to conserve and maintain working forests and their safe storage of carbon. Massachusetts will also seek to use forest carbon markets to encourage the retention of higher value-added products in the local timber industry, which currently exports much unfinished product out of state. Other strategies include the use of sustainably harvested biofuels to offset fossil fuel consumption, planting trees in urban areas to reduce the heating and cooling load of buildings, and the use of wood products instead of more emission intensive materials like concrete, plastics, and steel. The state's goal is to fully incorporate net greenhouse gas emissions impacts when making forest management and land use decisions.

Climate change and carbon sequestration needs to be addressed on a local, regional, national and global scale. According to the Massachusetts Climate Protection Plan (See Appendix J): "Climate change could have serious impacts on the state's diverse ecosystems, native species and may encourage the spread of non-native species." The SBK Plan recognizes climate change as a result of increases in temperature due to elevated, human-induced levels of carbon dioxide from the burning of fossil fuels.[4] As temperatures increase globally, Massachusetts forest species composition will undoubtedly change over time. It is predicted from vegetation models that the range of forest communities will slowly shift in a northerly direction, resulting in a Massachusetts forest that is more typical of forests currently found further south. Other changes from natural disturbances will likely result in the increased frequency and intensity of fires, insect and disease infestations, and erratic weather patterns such as damaging winds, drought, flood, and ice damage.

Forests play a major role in keeping carbon dioxide out of the earth's atmosphere through carbon sequestration. This is especially important because it is estimated that forests contain approximately 75% of the earth's biomass.

The SBK Plan integrates the following strategies in consideration of climate change and improving the rates of carbon sequestration:

- DSPR system lands will remain as forest and it is anticipated that new land acquisitions will continue into the future
- Designates a forest reserve system (23% of SBK DSPR system lands) that, in their present condition, serve as carbon sinks.
- Maintain the full suite of biological diversity by focusing on sustainability and ecosystem composition, structure, and function in the form of native species, vegetative communities, age classes, distribution, and forest structures
- Provides the opportunity to offset carbon dioxide sources (concrete, steel , plastics, other synthetic products and forest products shipped from afar through the sustainable use of local forest products) thus storing carbon in lumber and other wood products
- Provides the opportunity to offset carbon dioxide sources that are not renewable energy sources (coal, oil, and gas) to local renewable and more carbon neutral forest energy sources
- Manages forests in longer rotations (105 and 150 year cycles) designed to increase carbon sequestration as opposed to shorter commercial and economic rotations (70 to 80 year cycles) designed to maximize revenue and forest products
- Thins forests with emphasis on reducing forest densities which are overstocked to keep trees vigorous, enhance carbon sequestration capacity, and reduce tree mortality and forest senescence
- Addresses the problem of non-native species, which will likely increase with continued climatic change

Supporting Maps :

Appendix A, #1 Southern Berkshire Management Forestry District

Appendix A, #2 Southern Berkshire District – Land Use – Land Cover

[4] See *Forests, Carbon and Climate Change*, 2007

Appendix A, #3 Southern Berkshire District - Protected Open Space

The SBK landscape consists of 340,052 acres. There are 131,002 acres (approximately 39%) that have some type of long-term protection. The table below shows the ownership of these protected lands.

Ownership (long term protection)	Acres	Percent of Total Protected Land
Federal	3,434	2.62%
State Agencies		
DCR State Parks and Forests	40,837	30.82%
DFG Wildlife Management Areas	4,815	3.68%
DCR/DFG Jointly Owned	1,171	0.89%
Other Commonwealth	318	0.24%
Private – Non-61	15,744	12.02%
Municipal	20,904	15.96%
Non-Profit	6,079	4.64%
Conservation Trust	5,462	4.17%
Land Trust	988	0.75%
Other	7,522	5.74%
Unknown	707	0.54%
Private – Chapter 61,61A, and 61B	23,483	17.93%
Total	**131,002**	**100.00%**

IV. Public Issues and Opportunities

The most important feature of the FRMP is the coordination and participation in the development of the plan by the public and DCR and other state agency staff. The following is a summary of the public outreach process:

- **Forest Reserve** deliberations: three public meetings and a formal public comment period
- **Berkshire Landscape Assessment** deliberations: two public meetings and a formal public comment period
- **Southern Berkshire District** deliberations: three public meetings and a formal public comment period

Public notification of meetings and public comment opportunities occurred through mailings (over 900 on mailing list), press releases, Environmental Monitor publications, e-mail group mailings, and posting of information on the DCR Bureau of Forestry web pages. Pre-planning

public issues are located in section *IV. Public Issues and Opportunities* and responses to all written public comments in *Appendix K. Public Comments*.

V. District Overview

The Southern Berkshire (SBK) District contains approximately 42,965 acres in the state forest and parks system. These lands range from the 10,526 acre Beartown State Forest to the 19 acre Jug End State Reservation. It should be noted that there are different administrative boundaries for forest fire control, forest management, service forestry, and recreation programs. All information in this plan is based on the Southern Berkshire's Forest Management District. Since information is being collected by the forest management district, properties have been arranged by this district. This plan is in a loose-leaf folder format so that information can be interchanged and arranged as needed. The properties in the SBK District have been grouped into four management units for administration of the forest management program. The following table shows the groupings as well as the forest numbers, property names, and acres:

MANAGEMENT UNIT #	FOREST #	SITE_NAME	Acres
12	120	Mt. Washington State Forest	4,578
12	121	Bash Bish Falls State Park	407
12	124	East Mountain State Forest	2,009
12	125	Mt Everett Reservation	2,039
12	126	Jug End State Reservation	19
12	126	Jug End State Reservation and WMA	1,171
12	127	Appalachian Trail Corridor	540
Unit 12 Total			***10,763***
13	130	Otis State Forest[5]	4,703
Unit 13 Total			***4,703***
14	140	Beartown State Forest	10,526
14	141	Fountain Pond Park	250
14	142	Arthur Wharton Swann State Forest	850
Unit 14 Total			***11,626***
15	150	Sandisfield State Forest	3,982
15	152	Cookson State Forest	2,798
15	154	Silver Brook North F.C. Site	160
15	154	Silver Brook South F.C. Site	53
15	155	Clam Lake F.C. Site	500
15	156	Campbells Falls State Park	138
Unit 15 Total			***7,631***

[5] This includes the 904 acre Spectacle Farm which was acquired in June of 2007. A separate forest resource management planning analysis will be conducted and amended to the SBK FRMP

16	160	Tolland State Forest	5,809
16	161	Granville State Forest	2,432
Unit 16 Total			***8,241***
Grand Total			**42,965**

Other (non-DSPR system) protected lands in the Southern Berkshire landscape provide complementary natural resource values, protection of BioMap core areas, and opportunities for cooperative resource management. See Appendix E for a list of protected lands within 1 mile of a DCR-DSPR property by ownership.

Although current use properties (privately owned properties managed under the Chapter 61 and 61A programs) are not permanently protected, they do provide and support a large matrix of 23,483 actively managed forested acres representing 17.93% of the SBK landscape.

VI. Forest Resource Management Area Direction

1. General Standards and Guidelines

The following standards and guidelines apply to all DSPR system lands:

A. **Policies:** DSPR must follow all applicable Commonwealth laws, regulations, executive orders, policy, and documented direction.

B. **Standards, Guidelines and Management Area Delineations:** In general, standards, guidelines and management area delineations should be followed according to the district forest management plan. Minor, site-specific adjustments to the standards, guidelines and management area delineation may occur with documented rationale and approval by the Forest Management Program Supervisor and Chief Forester. It should be noted that management area delineations were determined primarily through the application of GIS forest and resource data. Field reconnaissance may result in the need to make adjustments according to the natural and physical features of the site.

C. **Education**: Education efforts should emphasize and encourage the DSPR mission and management, natural resource protection, safety, responsible use, and personal responsibility.

D. **Vegetation and Forest Products:**

- A contract or specific permission is required for the removal or cutting of all forest vegetation and products.

- Where campfires are allowed, firewood collection is limited to dead and down wood in the immediate camping area.

E. **Openings:**

- Existing fields, vistas, and wildlife openings if consistent with wildlife habitat requirements, cultural needs, and scenery management objectives, may be maintained.

- New fields, vistas, and wildlife openings if consistent with wildlife habitat requirements, cultural needs, and scenery management objectives, may be created and maintained except in Forest Reserve Areas

F. **Water and Soil:** All projects and activities shall comply with Forest Best Management Practices.

G. **Commercial Minerals:** Mining, oil and gas development, etc. is not allowed within DSPR system lands as per 304 CMR 12.11.

H. **Common Variety Minerals**: Development of common variety minerals (sand, gravel, top soil, etc.) is not allowed within DSPR system lands as per 304 CMR 12.11.

I. **Rock and Mineral Collection:** The collection of mineral specimens is not allowed within DSPR system lands without a special use permit as per 304 CMR 12.11.

J. **Metal Detectors:** The use of metal detectors is prohibited on DSPR system land

K. **Air Quality:** Air quality related values within DSPR system lands should be protected from adverse impacts associated with management and use.

L. **Boundaries:**
- All DSPR system land boundaries should be surveyed, marked and posted where feasible.

- Boundaries will be marked and posted prior to any land disturbing activity adjacent to private lands.

- Boundaries should be maintained on a 10-year schedule.

- Property boundaries on newly acquired tracts should be marked within a two-year period after the acquisition date.

M. **Roads:** Facilities associated with roads designed as part of the National Scenic Byway system must be managed in accordance with Federal Highway Administration direction in the "National Scenic Byways Program-Program Information."

N. **Land Protection:** In-holdings and land adjacent to existing DSPR system lands may be protected through fee acquisition or conservation restrictions based on DSPR land protection priorities, dependent upon available funds.

O. **Appalachian National Scenic Trail (AT):** Management of the AT must follow the National Trails Systems Act, as amended (P.L. 90-543). This Act is implemented according to:

- The Comprehensive Plan for the Protection, Management, Development, and Use of the Appalachian National Scenic Trail

- Memorandum of Understanding Guidance Document for The Appalachian National Scenic Trail in the Commonwealth of Massachusetts, MOU 2490-01-003 dated April 3, 2003 between the Commonwealth, the National Park Service, the Appalachian Trail Conference, and the Appalachian Mountain Club.

Consistent with the existing agreement, DSPR will consult with the Appalachian Trail Conference and the Appalachian Mountain Club on management actions that may affect AT values.

Management will be guided by the following documents as amended:

- Appalachian Trail Conference. *Appalachian Trail Design, Construction, and Maintenance (ATC Stewardship Manual, second edition, 2000)*

- Local DSPR approved AT Management Plans.

- Where the AT follows a DSPR road system or road within DSPR system lands, road maintenance may be done as needed on drainage structures, closure devices, road bed and management of vegetation for safe vehicle access.

2. Forest Reserves

Both reserves and harvested lands contribute to conservation of biological diversity, so why are reserves needed? Reserves provide "control" areas for comparison to "treatments" applied to harvested sites. The species and communities that occupy reserves over time can be compared to species and communities on harvested sites to verify that forestry practices on DSPR lands sustain all components of biological diversity. Forest reserves provide unique recreational and aesthetic opportunities and based on initial public comments, can potentially serve as a spiritual resource for residents of the Commonwealth. Forest reserves provide potential refugia for unique species assemblages and may provide habitat for invertebrate wildlife and soil micro-organisms that have not been well studied to date.

The wood products harvested from public and private lands support rural economies and revenues generated from harvesting on private forestlands are essential for making it economically viable to retain private forest land in forest use. Reserves allow us to assess and to verify the sustainability of harvesting on public and private forestlands. DSPR maintains that harvesting and reserves are important elements of natural resource conservation and has established the following goals, objectives and benefits of reserves on state forest lands:

Goals: Provide an ecological reference condition, late successional habitat, and socially important forested areas where management occurs only from natural processes. This contributes to the diversity of the forest ecosystems that occur in forest reserves in Massachusetts.

Objectives: To the greatest degree possible, allow natural disturbance processes to determine the structure and composition of the forest ecosystem.

Facilitate biological monitoring to establish baseline data on the species and communities that occupy forest ecosystems reserved from commercial timber harvesting.

Benefits: Facilitate assessment of the ecological sustainability of commercial harvesting on active management sites.

Provide unique recreational and aesthetic opportunities in biologically mature forest habitats that will develop over time in reserves.

An ecological reference condition is established when natural disturbance processes, to the greatest degree possible, determine the structure and composition of a forest ecosystem. While no forestland in Massachusetts is free of human impact from ubiquitous influences such as air pollution and invasive, exotic organisms, forest reserves can still help ensure that representative examples of biodiversity indigenous to an area are more likely to be conserved.

Forest reserves provide reference sites for objective assessment of the sustainability of forest management practices (Norton 1999) and are essential for practicing adaptive resource management (Walters and Holling 1990).

Reserves create opportunities for connectivity within the landscape, conservation of species and processes, buffering against future uncertainty, and other hard to measure but valuable functions (Hunter 1996).

If reserves are to be established, how large should they be and how many should there be? Given that a goal of reserves is to understand how natural disturbance processes shape the structure and composition of forest ecosystems, it seems appropriate to have some reserves that are equal or greater in size than the largest expected natural disturbance patch. Natural disturbances are common in southern New England forests and range from frequent, small disturbances (e.g., annual wind events that disrupt <1 acre of forest canopy) to occasional, catastrophic disturbances (e.g. major windstorms that disrupt as much as 5,000 contiguous acres of forest canopy once every few centuries). The following table shows expected disturbances, magnitude and return intervals:

	Tornado	**Hurricane**	**Downburst**	**Large Fire**	**Insect Outbreak**	**Ice Storm**	**Flood**
Max. size of	5,000	803	3,400	57-150	?	< 5	?

severe damage patch (acres)							
Return interval (years)	100-300	60-200	?	400-6,000	10	2	20-100

DSPR supports having some large reserves of ≥5,000 acres that represent the diversity of forest ecosystems that occur in Massachusetts. The Nature Conservancy (TNC) has conducted extensive research on reserve design and has proposed that reserves of ≥15,000 acres be established to insure that a portion of the reserve will likely occur in a biologically mature forest at all times, while other portions will likely be recovering from recent disturbances throughout time.

There are approximately 9,695 acres in Forest Reserve Areas. All Forest Reserve Areas are identified as "High Conservation Value Forest" according to the Forest Stewardship Council Northeast Standards for sustainable and well managed forests. This document can be found in Appendix D.

Biodiversity conservation has increasingly recognized the shortcomings in simply using the single species (fine filter) approach to conservation, and is accordingly emphasizing the conservation of ecological communities and ecosystems. Coupled with this emphasis has been an increased appreciation for natural processes and landscape-level factors that sustain these communities and ecosystems. One of the goals of ecoregional and district wide planning is to identify viable examples of all types of ecosystems at appropriate scale to conserve their component species and processes. They are important as "coarse filters" for the conservation of most common species, wide-ranging fauna such as large herbivores, predators, and forest interior birds. The size and natural condition of the matrix forest allow for the maintenance of dynamic ecological processes and meet the breeding requirements of species that utilize late successional forest habitat.

The Forest Reserve (passive management) areas are those areas that are "set-aside" from the traditional land management base. These areas protect important habitat or landscape features, provide habitat for species that utilize older and complex forest structure, serve as controls for research, and as places where natural systems and disturbance regimes can function relatively free of human interference.

There are both large and small-scale Forest Reserves on DSPR system lands. Large-scale Forest Reserves use a coarse filter approach to protect relatively complete ecological communities and ecosystems, while small-scale Forest Reserves apply a fine filter approach to protect specific landform and habitat features. The SBK contains one large-scale Forest Reserves (Mt. Washington Forest Reserve) and numerous dispersed small-scale Forest Reserves.

Supporting Maps:

Appendix A, #4 Forest Interiors
Appendix B, #1, 10, 19, 28, 37, 46, 55, 64, 73, 82 Property Level – Reserves, Intensive Use and Active Management Areas

A. Large-scale Forest Reserves

There are approximately 7,149 acres in the Mount Washington Forest Reserve Area complex.

Identifying large-scale Forest Reserves is a process that takes into account landscape features, past land use, ownership patterns, and social costs and benefits. The EOEEA working group that recommends large-scale reserve candidates worked under the following assumptions when determining potential large-scale reserve locations:

Large-scale Forest Reserves are designed to:

- Represent late successional habitat and baseline control data and information for each ecoregion
- Withstand and recover from large-scale disturbance processes
- Provide viable and adequate breeding habitat for characteristic and area-sensitive species
- Although anchored in large state-owned lands, large Forest Reserves can be supplemented by federal, municipal, non-profit, and private holdings

2. Twenty-one (21) relatively unfragmented "forest blocks" were identified through a statewide Forest Reserve planning process. These forest blocks represent some of the best opportunities for conserving large-scale Forest Reserve systems in the Commonwealth. These areas are the least fragmented by roads and have the largest patches and greatest percentage of interior forest, key components of successful Forest Reserves.

3. Representation of Massachusetts' forest types is best achieved by stratifying large Forest Reserves by ecoregion.

4. Approximately 20% of EOEEA system lands in total may be in a large (approximately 10%) or small (approximately 10%) scale reserve status (result of analysis and public involvement).

Beginning with these assumptions, the working group developed nine criteria with which to evaluate the original 21 forest blocks. EOEEA then convened a stakeholder workshop to evaluate, revise and weight these criteria. The resulting 11 criteria were weighted according to the relative importance assigned by the stakeholders:

Characteristic	**Weighting**
Acreage of Old Growth	.268
Acreage of Valley Bottom Land	.188
% Protected Land in Surrounding area	.115
% 1830s Forest	.114
Number of Viable Rare Communities	.108
% Forest Cover in Surrounding	.051
% Biomap Ambystomid Habitat	.047
% Riparian and Wetland Forest	.035
Acreage of Largest Interior Forest	.025[6]

[6] Forest interiors are defined as forest land that is greater than 1,000 meters from major highways (4+ lanes), 300 meters from state highways, train corridors, developed and open lands and 100 meters from local roads

% Forest Interior	.025
% Living Waters CSW	.023

Following this analysis, feasibility criteria (road density, ORV use, infrastructure density, adjacent land use, utility use, past land use, etc) were used to evaluate potential Forest Reserves. A field review was conducted to evaluate all large-scale Forest Reserves. Following both biodiversity evaluation and feasibility review, a large scale statewide forest reserve system was created.

(1) Present Condition of Large-scale Reserves

The Mount Washington Reserve consists of significant portions of the Mt. Washington, Mt Everett, Bash Bish Falls and Appalachian Trail properties which are owned and managed by DSPR and portions of the Jug End Reservation and WMA which is jointly owned and managed by the Division of Fish and Wildlife (DFW) and it is augmented by several large properties owned by the Nature Conservancy. The Reserve is mostly forested with oak, northern hardwood and hemlock cover types. Ridgetop stands of scrub oak and/or pitch pine make up a relatively small, but ecologically significant portion of the entire area. None of the properties in the Reserves allow off road vehicle use.

Forest Types and Acres on DSPR system lands in the Mount Washington Reserve

Forest Type	**Acres**
Administration	1
Agriculture	1
Beech, Birch, Maple	791
Cliffs	8
Hemlock Hardwood	1,706
Mixed Oak	511
Northern Red Oak	121
Oak Hardwood	3,238
Open Water	15
Pitch Pine – Scrub Oak	29
Poplar – Aspen	13
Red Maple	8
Rocky Summit	26
Scrub Oak	7
Shallow Marsh Meadow or Fen	18
Sugar Maple	5
White Birch	4
White Pine	9
White Pine – Hardwood	267
White Pine – Hemlock	29
No Data	348
Mt. Washington Reserve Total Acres	**7,149**

(2) Desired Condition of Forest Reserves

The desired condition for the Forest Reserves are late-successional native forests where forest succession and natural disturbances are allowed to proceed relatively free of human intervention. Human use is allowed, however, uses and activities must be consistent with providing a natural relatively undisturbed landscape. The following table shows the predicted age class distribution of the Small and Large Scale Forest Reserve Areas minus regeneration level natural disturbance.[7]

	0-14 years old Regenerating-Sapling 0-4.5" DBH	15-59 years old Poles 4.6-10.9" DBH	60-89 years old Sawlogs 11-14.9" DBH	90+ years old Large Sawlogs 15"+ DBH	Uneven aged All size classes	Non Forest
Present Distribution	2.80%	29.41%	51.26%	10.32%	1.21%	5.00%
Acres	271	2,851	4,970	1,001	117	485
2020 Distribution	0.00%	22.40%	33.64%	37.75%	1.21%	5.00%
Acres	0	2,172	3,261	3,660	117	485
2035 Distribution	0.00%	12.59%	19.61%	61.59%	1.21%	5.00%
Acres	0	1,221	1,901	5,971	117	485
2050 Distribution	0.00%	2.80%	19.61%	71.39%	1.21%	5.00%
Acres	0	271	1,901	6,921	117	485
2065 Distribution	0.00%	0.00%	12.59%	81.20%	1.21%	5.00%
Acres	0	0	1,221	7,872	117	485
2080 Distribution	0.00%	0.00%	2.80%	91.00%	1.21%	5.00%
Acres	0	0	271	8,822	117	485
2095 Distribution	0.00%	0.00%	0.00%	93.79%	1.21%	5.00%
Acres	0	0	0	9,093	117	485
2110 Distribution	0.00%	0.00%	0.00%	93.79%	1.21%	5.00%

[7] Numbers in this plan are derived from several different sources (such as GIS anaylsis, Continous Forest Inventory Plots, and aerial photo interpretation). Any differences in comparable numbers in the tables or text are either due to using different sources or due to rounding.

Acres	0	0	0	9,093	117	485
Total Desired Distribution	0.00%	0.00%	0.00%	93.79%	1.21%	5.00%
Acres	0	0	0	9,093	117	485

(3) Management Guidelines for Large-scale Reserves

Recreation, Public Access, and Visual Resources within Forest Reserves

A. Recreational activities that may be allowed are hiking, hunting, fishing, bird watching, mountain biking, snowmobiling and horseback riding.

B. ORV use is prohibited

C. When there is snow cover (4+ packed inches), snowmobile use is allowed on designated trails and unplowed roads

D. Intensive, development-dependent recreation and administrative sites are not permitted

E. New trail construction is permitted only if limited to stable areas and are relocations of exiting trails to avoid adverse impacts to late-successional forest habitat, rare species, water quality, and to known or potential archaeological sites

F. Minimal cutting of vegetation to maintain DSPR identified public vistas and trails is permitted

G. Hazardous trees directly adjacent to the trail, of imminent, substantial risk to public safety may be cut.

Silviculture and Vegetation Management within Forest Reserves

A. Habitat manipulation and traditional sivicultural treatments and operations are not permitted with the following exceptions:

1. Natural Heritage & Endangered Species Program recommendations used to restore, maintain or enhance habitat for rare and endangered species, and exemplary rare communities

2. Restore native vegetation by removing non-native and off-site plantations

3. Control of non-native invasive species will be permitted

4. Vegetation management will be permitted to control erosion or stabilize soils, close roads, or close unauthorized trails

5. Limited cutting of vegetation is allowed for maintenance of trails and existing roads and to protect historic archeological sites

B. Acreage in the reserve is excluded from the annual sustainable harvest calculation

C. Research that causes no adverse impact to the Forest Reserve will be permitted through a formal written proposal process, approved in advance by the Commissioner or their designee

D. New fields, vistas, and wildlife openings are prohibited

Water and Soil Resources within Forest Reserves

A. Management may be permitted to control erosion or stabilize soils, close roads, or close unauthorized trails

Forest Health and Protection within Forest Reserves

A. Spread of major significant forest pathogens may be controlled if there is a major threat to forest health or risk to private or public interests as determined by the State Forester

B. Non destructive, low impact research for monitoring forest conditions may be established

C. Wildfires will be contained, controlled, and suppressed unless there is an approved site specific controlled fire plan and conditions are within prescription

D. Fire breaks may be maintained in fire prone types of vegetation

E. Prescribed fire may be used when it is compatible with protection of the Forest Reserve, restoration of native communities and ecological processes, and the protection of life and property in the reserve or the surrounding landscape

Facilities, Transportation, and Boundaries within Forest Reserves

A. No new roads will be constructed

B. Existing roads not needed for recreational or administrative use may be closed and restored to their natural condition

C. Passage through the area is allowed on existing stable roadbeds or trails

D. Existing roads will be managed and maintained according to DSPR road standards to assure continued access

E. Construction of new facilities is prohibited. Exceptions may include small-scale, low impact, natural appearing informational kiosks, universal access structures for trails trailheads and parking, and carefully designed boardwalks

Special Uses within Forest Reserves

A. Special uses such as events and activities will be evaluated and may be allowed.

B. Existing special uses such as transmission lines and communication sites that are not compatible with the intent of Forest Reserves will be evaluated to determine if they can be relocated to another area

C. New communications sites are prohibited

D. Wind towers are prohibited

B. Small-Scale Forest Reserves

There are approximately 2,546 acres in small-scale Forest Reserves.

(1) Present Condition

There are a number of areas in the SBK district that traditionally have not been managed for forest products due to their sensitivity and inaccessibility. In the past, the Department's Land Zoning system designated research, natural and wildland areas that were also set aside from vegetation management. The process to identify and designate small-scale forest reserves used the same selection criteria as the large-scale Forest Reserve process without the size restriction. The table below shows the acreage in small-scale Forest Reserve Areas by facility.

Acres in small-scale Forest Reserves by facility

FACILITY	ACRES
APPALACHIAN TRAIL CORRIDOR	105
BEARTOWN STATE FOREST	507
CLAM LAKE F.C. SITE	137
COOKSON STATE FOREST	350
EAST MOUNTAIN STATE FOREST	333
GRANVILLE STATE FOREST	164
OTIS STATE FOREST	769
SANDISFIELD STATE FOREST	96
TOLLAND STATE FOREST	85
TOTAL	**2,546**

(2) Desired Condition

The desired conditions for the small-scale Forest Reserves are the same as the desired conditions for the large-scale Forest Reserves.

(3) Management Guidelines for Small-Scale Reserves

The management guidelines for small-scale Forest Reserves are the same as those for large-scale Forest Reserves.

3. Intensive Use Areas

There are approximately 533 acres of Intensive Use Areas in the SBK district.

General Description: The Intensive Use Areas include constructed or developed administrative, maintenance and recreation sites, structures and resilient landscapes that accommodate concentrated use by recreational visitors and require intensive maintenance by DSPR staff. Examples include park headquarters and maintenance areas, parking lots, swimming beaches, campgrounds, picnic areas and pavilions, open fields designed for high recreation use, and attractions such as waterfalls.

Supporting Maps:

Appendix B, #1, 10, 19, 28, 37, 46, 55, 64, 73, 82 Property Level – Reserves, Intensive Use and Active Management Areas

(1) Present Conditions of Intensive Use Areas

The following table lists the Recreational Assets found in the Southern Berkshires District. Not all of these resources are in the Intensive Use Areas, but they must be considered in the forest and vegetation resource management activities.

The following table lists facility assets on DSPR system properties in the SBK district.

State Forest or Park	Facility Assets
Beartown State Forest	**Dams:** Benedict Pond Swann Lodge Stone House **Boat Launches:** Benedict Pond Lake Buel **Campgrounds / Day Use:** Benedict Pond Campground 12 Sites Benedict Pond Day Use Area

	Parking Area: Day Use Area - Beach (12) ORV Parking Lot(12) CCC Site Parking Lot(10) Lake Buel Parking Area(40) Appalachian Trail Parking Area (6) **Trails:** Appalachian Trail (5.6 mi) Other Trails (27.6)
Cookson State Forest	**Dams:** 1000 Acre Pond **Boat Launches:** 1000 Acrea Pond
East Mountain State Reservation	Trails: Appalachian Trail (1.7 mi)
Granville State Forest	**Dams:** CCC Dam Bahre Pond **Campgrounds/Day Use Area:** Halfway Brook Camping area (22 sites) **Parking Areas:** Entrance Parking Area (3) Circle Lot (20) Campground (10) Halfway Brook Lot (8) **Trails**: All Trails (14.8 mi)
Otis State Forest	**Dams:** Upper Spectacle Pond **Boat Launches:** Upper Spectacle Pond Big Pond **Trails:** All Trails (4.1 mi)

Sandisfield State Forest Silver Brook North and South F.C. Site Clam Lake F.C. Site Area	**Dams:** York Lake West Lake Abbey Lake North Silver South Silver Clam Lake **Boat Launches**: York Lake West Lake **Parking:** York Lake Parking Area (50) West Lake Parking Area (10) **Trails:** All Trails (7 mi) **Campgrounds/Day Use Areas:** York Lake Day Use Area
Tolland State Forest	**Dams:** Otis Reservoir **Boat Launces:** Otis Reservoir **Campgrounds/Day Use Areas:** Tolland Camp Ground (93 Sites) Tolland Day Use Area **Trails:** All Trails (11.2 mi) **Parking:** Boat Launch Parking Area (30) Day Use Parking Area
Mt. Washington Mt. Everett Bash Bish Falls	**Campgrounds/Day Use Areas:** Ashley Hill Campground (10 Sites) Bash Bish Day Use Area Guilder Pond Day Use Area **Trails:** Appalachian Trail (7.4 mi) Other Trails (19.6 mi) **Parking:** Mt. Washington Head Quarters Lot (30) Bash Bish Day Use Lot (25) Mt. Everett Lower Parking (10) Guilder Pond Day Use Parking (25) Race Brook Falls Parking (7)

There are approximately 2.8 acres of non-native and off-site plantations in the Intensive Use Areas.

(2) Desired Conditions of Intensive Use Areas

Visitors should expect safe recreational opportunities that are balanced with resource conservation goals.

(3) Management Guidelines for Intensive Use Areas

Recreation, Public Access and Visual Resources in Intensive Use Areas

A. Vegetation management will be conducted to promote and maintain native vegetation of low maintenance, long-term durability, and low hazardous risk

B. Annually, a hazardous tree and vegetation survey should be conducted prior to opening the facility

C. Trees and vegetation identified as high hazards should be safely removed as soon as possible

D. Intensive Use Areas with high levels of high hazardous trees and vegetation should be closed and rehabilitated until risks are acceptable

E. Slash, as a result of forest management within 50 feet of Intensive Use Areas, should result in a light and natural appearing forest ground cover.

Silviculture and Vegetation Management in Intensive Use Areas

A. Acreage in the Intensive Use Areas is excluded from the annual sustainable harvest calculations

B. Vegetation treatments may be conducted to improve public safety related to hazard trees, forest health, wildfire fuel reduction, fire suppression, and improve access for recreation and environmental education programs

C. Invasive exotic species should be removed wherever possible

D. Emphasis will be on maintaining native vegetation with value to wildlife species

E. Non-native and off-site plantations should be managed, when possible, in a manner that gradually restores the native forest within the intensive use area. Plantations that are dead or dying may need to be more intensively managed to reduce the public hazards and accumulation of excessive slash and debris. Where possible, the goal is to maintain a forested setting and actively restore the native forest within the intensive use area.

F. Small-scale wildlife habitat improvements may be conducted

G. Landscape plantings will consist of native materials in natural resource areas and historically compatible species in cultural resource areas

Water and Soil Resources in Intensive Use Areas

A. Surface water resources may be used for recreation within the constraints of maintaining public safety and water quality

B. Surface water and associated wetland vegetation will be managed following the guidelines established in the Wetlands Protection Act

C. Ground water resources may be utilized for day use and camping facilities

D. Manage soils on a sustainable basis to minimize erosion, compaction and displacement

Forest Health and Protection in Intensive Use Areas

A. Spread of major forest pathogens may be controlled through environmentally sound programs

B. Wildfires will be contained, confined and controlled in a safe and aggressive manner

Facilities, Transportation and Boundaries in Intensive Use Areas

A. All main roads and bridges will be constructed or maintained to support vehicular traffic to meet administrative, recreation and natural resource management access needs with public safety considerations as the primary management objective

B. Use of roads by logging trucks or other commercial traffic may be restricted during periods of high visitor use

4. Active Forest Resource Management Area

There are approximately 31,753 acres in the Active Forest Resource Management Areas (this includes 29,042 acres of productive forest and 2,711 acres of non-forest). Active Forest Resource Management Areas include the full range of sustainable forest management, recreation activities and natural resource uses. These areas are suitable and available for active vegetation management to achieve the desired conditions. However, not all lands within this active management area will be managed due to physical and feasibility limitations. It should also be noted that management and use occur in a sustainable manner with temporal and spatial considerations. For example, forest management may occur in a variety of locations over time on a very small percentage of land on an annual basis. All proposed projects including forest management, wildlife, recreation, trails, etc. must be designed to achieve the desired conditions and meet management guidelines.

Supporting Maps:

Appendix B, #1, 10, 19, 28, 37, 46, 55, 64, 73, 82 Property Level – Reserves, Intensive Use and Active Management Areas

A. Recreation, Public Access, and Visual Resources within Active Forest Resource Management Areas

(1) Present Condition of Recreation, Public Access and Visual Resources within Active Forest Resource Management Areas

Recreational opportunities and aesthetic quality are important to all visitors to DSPR system lands. The SBK lands are used for many types of recreation. Uses include camping, hiking, cross country skiing, snowshoeing, horseback riding, off-road vehicle use (in Beartown State Forest and Tolland State Forest), birding, nature study, mountain biking, sightseeing, swimming, hunting, and fishing.

The following table shows the acres in road and trail corridors (areas along trails where vegetation management is modified to meet safety and aesthetic concerns) by facility. More specific trail and road information for each property can be found in the management unit appendices.

SITE_NAME	Acres
APPALACHIAN TRAIL CORRIDOR	350
ARTHUR WHARTON SWANN SF	171
BASH BISH FALLS STATE PARK	20
BEARTOWN STATE FOREST	1,133
CAMPBELLS FALLS STATE PARK	1
CLAM LAKE F.C. SITE	14
COOKSON STATE FOREST	129
EAST MOUNTAIN STATE FOREST	282
FOUNTAIN POND PARK	10
GRANVILLE STATE FOREST	169
JUG END STATE RESERVATION & WMA	83
MT EVERETT STATE RES	623
MT WASHINGTON STATE FOREST	224
OTIS STATE FOREST	198
SANDISFIELD STATE FOREST	164
SILVER BROOK NORTH/SOUTH F.C. SITES	8
TOLLAND STATE FOREST	373
Grand Total	**3,951**

Supporting Maps:

Appendix A, #5 Southern Berkshire District – Reserves, Intensive Use and Active Management Areas

Appendix B #2, 11, 20, 29, 38, 47, 56, 65, 74, 83 Property Level – Hydrology Buffers

Appendix B #3, 12, 21, 30, 39, 48, 57, 66, 75, 84 Property Level – Road and Trail Corridors

Statistics have been generated showing acres and percentages of each community within the SBK District. These numbers are broken down for each town by Reserve Areas, Intensive Use Areas, and Active Management Areas.

Town	Acres in District	% of Town in District	% of District	Acres in Reserve	% in Reserves	Acres in Intensive Use	% in Intensive Use	Acres in Active Management	% in Active Management
ALFORD	7378	100%	2.17%	0	0.00%	0	0.00%	0	0.00%
BECKET	3352	11%	0.99%	127	3.79%	0	0.00%	87	2.60%
BLANDFORD	21829	64%	6.42%	0	0.00%	0	0.00%	698	3.20%
EGREMONT	12082	100%	3.55%	774	6.41%	20	0.17%	359	2.97%
GRANVILLE	27562	100%	8.11%	29	0.11%	14	0.05%	1625	5.90%
GREAT BARRINGTON	29310	100%	8.62%	610	2.08%	297	1.01%	6038	20.60%
LEE	7495	43%	2.20%	75	1.00%	0	0.00%	547	7.30%
MONTEREY	17519	100%	5.15%	229	1.31%	41	0.23%	4217	24.07%
MONTGOMERY	1	0%	0.00%	0	0.00%	0	0.00%	0	0.00%
MOUNT WASHINGTON	14325	100%	4.21%	6006	41.93%	13	0.09%	889	6.21%
NEW MARLBOROUGH	30654	100%	9.01%	298	0.97%	8	0.03%	2783	9.08%
OTIS	24294	100%	7.14%	659	2.71%	93	0.38%	2337	9.62%
RUSSELL	6340	55%	1.86%	0	0.00%	0	0.00%	0	0.00%
SANDISFIELD	33903	100%	9.97%	285	0.84%	0	0.00%	5727	16.89%
SHEFFIELD	31098	100%	9.14%	401	1.29%	0	0.00%	217	0.70%
SOUTHWICK	10834	53%	3.19%	0	0.00%	0	0.00%	0	0.00%
STOCKBRIDGE	7924	52%	2.33%	0	0.00%	0	0.00%	450	5.68%
TOLLAND	20985	100%	6.17%	203	0.97%	47	0.22%	2678	12.76%
TYRINGHAM	12068	100%	3.55%	0	0.00%	0	0.00%	386	3.20%
WEST STOCKBRIDGE	9516	80%	2.80%	0	0.00%	0	0.00%	0	0.00%
WESTFIELD	11584	38%	3.41%	0	0.00%	0	0.00%	0	0.00%
Totals	340054		100.00%	9696	2.85%	533	0.16%	29038	8.54%

(2) Desired Condition of Recreation, Public Access and Visual Resources within Active Forest Resource Management Areas

The desired condition is a state forest or park where a variety of passive and active natural resource-based recreational opportunities and uses occur in a safe and environmentally sustainable manner that is consistent and compatible with natural resource management goals. The aesthetic and visual qualities of the recreation and other use areas provide a variety of forested experiences. The ORV study and subsequent formulation of policies are completed and the results are incorporated in the SBK Forest Resource Management Plan.

(3) Management Guidelines for Recreation, Public Access and Visual Resources within Active Forest Resource Management Areas:

A. Sustainable forest management practices for recreation, public access and visual resources shall be designed to promote native vegetation, species diversity, large-diameter trees, multiple age classes, a healthy forest, a safe recreation experience, and aesthetics through uneven-aged (five 30 year entries totaling 150 years) and extended rotation (150 years) even aged forest management systems.

B. Special attention and care should be made to provide for long-term quality scenery within DSPR system lands.

C. In general, management should promote native, diverse, healthy forests and habitats. Adjacent to recreation areas, emphasis should be given to vegetation that is safe to the public and consists of older and larger trees with multiple age classes to provide long-term quality scenery management.

D. Scenery management should be planned according to the following road and trail corridor and socially important area guidance:

1. Appalachian National Scenic Trail

The Appalachian National Scenic Trail (AT) includes a "Primary Corridor" with a 200 foot wide area on each side of trail and a "Secondary Corridor" with a 300 foot wide area on each side of primary trail corridor (a total 500 foot wide area on each side of the trail).

a. Sustainable forest management, including salvage may be allowed as long as they are consistent with Appalachian National Scenic Trail (AT) local management plan and the MOU. Practices shall be planned to meet the objectives of the AT primary and secondary corridors.

b. Should forest management take place within the primary or secondary corridors, skid trails should not cross the AT unless there are no feasible alternatives.

c. Forest management within the AT primary and secondary corridors will be designed to promote native diverse vegetation, large diameter trees, multiple age classes and forest structures, forest health, a safe recreation experience, and quality scenery.

d. Slash, as a result of forest management within 50 feet of the AT, should result in a light and natural appearing forest ground cover.

2. Interstate, Intrastate and Local Roads and Trails:

Interstate and Intrastate roads and trails include a 100 foot wide corridor on each side of the road or trail. Local roads and trails that are included in the DSPR road and trail database (mapped and officially designated) include a 50 foot wide corridor on each side of the road or trail.

a. Sustainable forest management, including salvage, is allowed within road and trail corridors.

b. Forest management within the trail corridors will be designed to promote native diverse vegetation, large-diameter trees, multiple age classes and forest structures, healthy forest, safe recreation experience, and quality scenery.

c. Slash, as a result of forest management within 25 feet of roads, interstate, intrastate, and local trails, should result in a light and natural appearing forest ground cover.

d. Natural resource managers will coordinate with park supervisors and user groups when vegetation management is planned.

e. Natural resource managers will coordinate with park supervisors and user groups to determine if "field identified" roads and trails (not mapped or signed) should have corridor forest management guidelines applied, have no special treatment, or should be closed and rehabilitated.

3. Socially Important Areas:

Socially Important Areas are defined as Forest Reserves, Intensive Use Areas and other areas identified during the proposed timber harvest public notification process. Socially Important Areas will have a transitional corridor to the Active Management Area of approximately 100 to 300 feet wide.

a. Sustainable forest management, including salvage, is allowed within and adjacent to the socially important area transition corridor.

b. Forest management within the corridor will be designed to promote native diverse vegetation, large-diameter trees, multiple age classes and forest structures, healthy forest, safe recreation experience, and quality scenery.

c. Slash, as a result of forest management within and adjacent to 25 feet of the socially important area, should result in a light and natural appearing forest ground cover.

d. Natural resource managers will coordinate with park supervisors and user groups when vegetation management is planned.

B. Silviculture and Vegetation Management within Active Forest Resource Management Areas

The maintenance of appropriate native biodiversity is the underlying silvicultural and vegetation management goal on all state forest and parks lands. Biological diversity is, in part, a measure of the variety of plants and animals, the communities they form, and the ecological processes (soil, climate, water, nutrient cycling, disturbance, etc.) that sustain them. With the recognition that each species has value, individually and as part of its natural community, maintaining appropriate native biodiversity has become one of the most important natural resource management goals.

This is accomplished by applying both coarse and fine filter approaches. A coarse filter approach to conserving appropriate native biodiversity involves maintaining a variety of ecosystems; it assumes that a representative array of ecosystems (types and ages) will contain the vast majority of the species in the region. The fine filtered approach is directed towards individual species known to be rare and strives to catches them even if they "passed through" the coarse filter.

These filters are applied on DSPR system lands by first creating large and small-scale Forest Reserves to promote natural relatively undisturbed forest conditions and provide late successional habitat. The overlying goal on the remaining lands will be to promote appropriate native biodiversity through the protection, restoration, and maintenance of rare species and their habitat, rare natural communities and related species, and an effort to balance the forest age classes. The species composition and structure of the forests are equally important biodiversity elements and will be taken into consideration.

The Sivicultural and Vegetation Management Section is organized in the following subsections: conservation of rare species, restoration and maintenance of native ecosystems, and the establishment and maintenance of a diversity of forest types, age classes, and forest structures.

Rare Species

(1) Present Condition of Rare Species

The Massachusetts Endangered Species Act (MESA), M.G.L. Ch. 131A, and its regulations (321 CMR 10.00) prohibit the taking of any state-listed rare plant or animal species. MassWildlife's Natural Heritage and Endangered Species Program regularly updates and publishes *The Natural Heritage Atlas* that shows the Estimated Habitats of rare wetlands wildlife and the Priority Habitats of all state listed rare species. Rare species include those that are of Endangered, Threatened, or of Special Concern as defined in the MESA.

"Endangered" means any species of plant or animal in danger of extinction throughout all or a significant portion of its range, and species of plants or animals in danger of extirpation as documented by biological research and inventory.

"Threatened," means any species of plant or animal likely to become an endangered species within the near future throughout all or a significant portion of its range, and any species declining or rare as determined by biological research and inventory and likely to become endangered in the foreseeable future.

"Special Concern" means any species of plant or animal which has been documented by biological research and inventory to have suffered a decline that could threaten the species if allowed to continue unchecked or that occurs in such small numbers or with such restricted distribution or specialized habitat requirements that it could easily become threatened within Massachusetts.

All Rare Species habitat is identified as "High Conservation Value Forest" according to the Forest Stewardship Council Northeast Standards for sustainable and well managed forests (see Appendix D)

See Appendix F for a list of the 116 rare species that are currently known to occur in the SBK area. Additionally, this appendix also includes a list of the 27 rare species that are currently known to occur just on DSPR land in the district.

Priority Habitats delineate habitats for rare plant and animal populations protected under the MESA Regulations (321 CMR 10.00). They are comprised of polygons indicating the approximate extent of rare species habitat based on records in the National Heritage and Endangered Species Program. The following table shows the priority habitat for the SBK District:

Priority Habitat

2006 Data	Acres
NHESP Priority Habitat polygons on non-DSPR lands in the Southern Berkshires District	47,287
NHESP Priority Habitat polygons on DSPR lands in the Southern Berkshires District	9,806
Appalachian National Scenic Trail Corridor	*429*
Bash Bish Falls State Parkt	*407*
Beartown State Forest	*152*
Campbells Falls State Parkt	*10*
Cookson State Forest	*81*
Jug End State Reservation and WMA	*1,188*
Mt. Everett State Reservation	*2,034*
Mt. Washington State Reservation	*3,972*
Otis State Forest	*114*
Sandisfield State Forest	*37*
Tolland State Forest	*1,381*
Total	**57,093**

Estimated Habitats delineate the approximate geographical extent of habitats of state-protected rare wildlife (not plants) and indicate approximate locations of certified vernal pools for use with the Wetlands Protection Act Regulations (310 CMR 10.00). The following table shows the Estimated Habitat for the SBK District:

Estimated Habitat

2006 Data	Acres
NHESP Priority Habitat polygons on non-DSPR lands in the Southern Berkshires District	37,524
NHESP Estimated Habitat polygons on DSPR lands in the Southern Berkshires District	9,708
Appalachian National Scenic Trail Corridor	*429*
Bash Bish Falls State Parkt	*407*
Beartown State Forest	*152*
Campbells Falls State Parkt	*0x*
Cookson State Forest	*0x*
Jug End State Reservation and WMA	*1,188*
Mt. Everett State Reservation	*2,011*
Mt. Washington State Reservation	*3,972*
Otis State Forest	*65*
Sandisfield State Forest	*37*
Tolland State Forest	*1,381*
Total	**47,232**

Supporting Maps:

Appendix B, #4, 13, 22, 31, 40, 49, 58, 67, 76, 85 Property Level – Rare Species

(2) Desired Condition of Rare Species

The desired condition is a forested landscape where rare species and their habitats are appropriately valued, protected, and conserved. In addition, DSPR staff will work cooperatively with the Natural Heritage and Endangered Species Program to conduct periodic rare species and habitat inventories and surveys for the conservation, restoration and maintenance of rare species.

(3) Management Guidelines for Rare Species

A. Consult with Massachusetts Natural Heritage and Endangered Species Program (NHESP) Atlas for known occurrences or habitats of rare species during all project planning

B. Survey for rare species and habitats during all field operations. Training and protocols will be developed in cooperation with the NHESP

C. Submit to NHESP for review and recommendations the silvicultural prescription or project report with species and habitat considerations when rare species and/or their habitats are located

D. Meet intent and standards of rare species Conservation Management Practices as they are approved by NHESP for all species currently listed or delisted (such as the Spring Salamander and Spotted Turtle) since the preparation of this plan.

E. Continue to cooperatively develop with NHESP Conservation Management Practices for the protection of rare species and their habitats

Native Vegetation

(1) Present Condition of Native Vegetation

For over 5,000 years, people have moved plants with commercial value all over the globe. In Massachusetts, the Civilian Conservation Corp was very active in establishing plantations on areas that were previously cleared for agriculture, cut over, and/or burned. Many of these planted species were non-natives such as Norway spruce and Scots pine, or native trees that were planted out of their historic ranges (off-site) such as red pine and larch. The DSPR system lands in the SBK district contain approximately 457 acres of non-native and off-site plantations, and 22 acres of native plantations. Although these plantations are not usually invasive (invasive non-native species are discussed in the forest health section) and may contain valuable wood products, they support markedly lower diversity of native flora and fauna when compared to native forest types. The benefits (wood production) do not outweigh the negative ecological effects and potential threats of these plantations.

(2) Desired Condition of Native Vegetation

The desired condition is a forest where appropriate native biodiversity is supported through the maintenance and restoration of native ecosystems and species components. Non-native species will be removed and the area restored to native conditions where possible through the application of active vegetation management including silvicultural treatments and prescribed fire.

(3) Management Guidelines for Native Vegetation

A. Restore non-native forest conditions to native and natural conditions

B. Maintain a diversity of native forest types and age classes

C. Provide for an appropriate diversity of native species including herbs, forbs, and woody vegetation

D. Maintain non-native and off-site plantations only where their removal would have severe environmental consequences or in areas where they provide other societal benefits, such as high use recreational areas or historical context.

Forest Type and Age Class Diversity

A major factor influencing forest biodiversity in Massachusetts is the composition, age structure and distribution of forest types and their forest successional stages. This is important from a biological diversity perspective because each forest successional stages provides different components of species life cycle needs and each stage may have a different, although not usually unique, set of species. Because various plant and animal species are associated with different stages of succession, balancing the age structure of a forest provides the widest range of habitats and therefore biological diversity. Thus, when viewed on the time scale of forest succession and the spatial scale of landscapes, active vegetation management provides for and enhances biological diversity.

(1) Present Condition of Forest Type and Age Class Diversity

The SBK district's forest vegetation is currently composed of approximately 1% early successional forest habitat (0 to 14 years old), 71% mid successional forest habitat (15 to 104 years old), 2% uneven aged forest, 15% late successional forest habitat (114+ years old), and 9% non-forested. These are distributed over nine general forest types. The following table displays the breakdown of total acreage in the SBK district by age class and forest type.

SBK District Forest Vegetation by forest type and size class (All SBK Lands)

Major Group	Non-Forest	0-14 years old Regenerating-Sapling 0-4.5" DBH	15-59 years old Poles 4.6-10.9" DBH	60- 90 years old Sawlogs 11-14.9"DBH	90+ years old Large Sawlogs 15"+ DBH	Uneven aged All size classes	Grand Total
Total Current Distribution	8.63%	1.36%	23.36%	48.02%	15.51%	1.99%	100%
Total Sustainable Distribution	8.63%	6.82%	20.46%	13.64%	39.47%	9.86%	100%
Open Lands	763.47	0.00	0.00	0.00	0.00	0.00	763.47
White Pine/Red Pine	0.00	28.29	300.70	1921.14	1171.10	297.80	3719.03
Hemlock	0.00	29.63	3116.69	6203.34	713.68	39.51	10102.85
Spruce Fir	0.00	10.26	135.24	132.86	101.07	1.78	381.21
Pitch Pine/Scrub Oak	0.00	26.60	3.11	8.17	0.00	0.00	37.88
Northern Hardwoods	0.00	95.74	2325.19	4025.32	1051.82	370.98	7869.05
Birch Red Maple	0.00	67.12	70.82	43.56	0.00	0.00	181.50
Oak	0.00	273.49	3495.58	7830.33	3466.39	126.00	15191.79
Swamp Softwoods	0.00	0.00	39.37	0.00	0.00	0.00	39.37
Swamp Hardwoods	0.00	40.67	327.78	9.06	11.39	0.00	388.90
Water and Open Wetlands	2859.85	0.00	0.00	0.00	0.00	0.00	2859.85
No Data	525.79	0.00	0.00	0.00	0.00	0.00	472.79
Grand Total	4149.11	571.80	9814.48	20173.78	6515.45	836.07	42060.69[8]

Supporting Maps:

Appendix B, #5, 14, 23, 32, 41, 50, 59, 68, 77, 86 Property Level – Vegetation
Appendix B, #6, 15, 24, 33, 42, 51, 60, 69, 78, 87 Property Level – Vegetation with Resource Overlays

[8] This total does not include the data from Spectacle Farm since it is a recent purchase and a forest inventory has not yet been completed

(2) Desired Condition of Forest Type and Age Class Diversity

The desired condition is a forest where appropriate native biodiversity is provided through the maintenance of habitats where all successional stages are represented for each forest type. Biodiversity is further provided through a planned range of species composition and structural components and a well functioning forest ecosystem.

Native forest will be managed according to three sustainable management principles: 1) even-age regeneration system at 105 years rotation (expected culmination point of mean annual increment and annual incremental growth), 2) extended rotation at 150 years, and 3) uneven-aged regeneration system involving at least 5 distinct management entries (one every 30 years or so). It should be noted that intermediate thinnings should be anticipated when forest tree densities (stocking) are at a high level where competition for sunlight, water, and nutrients pose limiting factors.

The following table shows the desired age and size class distribution of the Active Forest Resource Management Areas over the next 105 years[9].

	0-14 years old Regenerating-Sapling 0-4.5" DBH	15-59 years old Poles 4.6-10.9" DBH	60-89 years old Sawlogs 11-14.9" DBH	90+ years old Large Sawlogs 15"+ DBH	Uneven aged All size classes	Non Forest
Present Distribution	0.94%	21.91%	48.95%	17.35%	2.26%	8.53%
Acres	300	6,963	15,555	5,515	719	2,711
2020 Distribution	9.02%	15.55%	31.78%	22.42%	12.66%	8.53%
Acres	2,865	4,942	10,099	7,124	4,023	2,711
2035 Distribution	9.02%	17.26%	14.61%	37.87%	12.66%	8.53%
Acres	2,865	5,486	4,642	12,036	4,023	2,711
2050 Distribution	9.02%	18.97%	14.61%	36.16%	12.66%	8.53%
Acres	2,865	6,030	4,642	11,492	4,023	2,711
2065 Distribution	9.02%	27.05%	8.25%	34.45%	12.66%	8.53%
Acres	2,865	8,595	2,621	10,948	4,023	2,711

[9] Forest Reserve stand and tree characteristics, such as species, age, diameter and size are estimated based on the natural progression of stand growth dynamics without natural and human-caused disturbance. It should be understood, however, that disturbances affecting forest and tree characteristics are both inevitable and unpredictable.

2080 Distribution	9.02%	27.05%	9.96%	32.74%	12.66%	8.53%
Acres	2,865	8,595	3,165	10,404	4,023	2,711
2095 Distribution	9.02%	27.05%	18.03%	24.67%	12.66%	8.53%
Acres	2,865	8,595	5,730	7,839	4,023	2,711
2110 Distribution	9.02%	27.05%	18.03%	24.67%	12.66%	8.53%
Acres	2,865	8,595	5,730	7,839	4,023	2,711
Total Sustainable Distribution	9.02%	27.05%	18.03%	24.67%	12.66%	8.53%
Acres	2,865	8,595	5,730	7,839	4,023	2,711

When combined with Forest Reserve Areas, the age class and structure for all DSPR lands in the Southern Berkshire District will be distributed as follows:

	0-14 years old Regenerating-Sapling 0-4.5" DBH	15-59 years old Poles 4.6-10.9" DBH	60-89 years old Sawlogs 11-14.9" DBH	90+ years old Large Sawlogs 15"+ DBH	Uneven aged All size classes	Non Forest
Present Distribution	1.36%	23.36%	48.02%	15.51%	1.99%	7.60%
Acres	571	9,814	20,174	6,516	836	3,191
2020 Distribution	6.82%	16.93%	31.80%	24.84%	9.86%	7.60%
Acres	2,865	7,114	13,358	10,434	4,140	3,191
2035 Distribution	6.82%	15.97%	15.57%	42.03%	9.86%	7.60%
Acres	2,865	6,707	6,543	17,656	4,140	3,191
2050 Distribution	6.82%	15.00%	15.57%	43.00%	9.86%	7.60%
Acres	2,865	6,301	6,543	18,062	4,140	3,191
2065 Distribution	6.82%	20.46%	9.15%	43.96%	9.86%	7.60%
Acres	2,865	8,595	3,842	18,469	4,140	3,191
2080 Distribution	6.82%	20.46%	8.18%	44.93%	9.86%	7.60%

Acres	2,865	8,595	3,436	18,875	4,140	3,191
2095 Distribution	6.82%	20.46%	13.64%	39.47%	9.86%	7.60%
Acres	2,865	8,595	5,730	16,581	4,140	3,191
2110 Distribution	6.82%	20.46%	13.64%	39.47%	9.86%	7.60%
Acres	2,865	8,595	5,730	16,581	4,140	3,191
Total Sustainable Distribution	6.82%	20.46%	13.64%	39.47%	9.86%	7.60%
Acres	2,865	8,595	5,730	16,581	4,140	3,191

(3) Management Guidelines for Forest Type and Age Class Diversity in Management in Active Forest Resource Management Areas:

A. Consolidate vegetation management activities where possible to emulate some natural disturbance processes, maximizing treatment effectiveness and efficiencies, and if applicable, decreasing the edge effect from harvesting

B. Conduct vegetation management activities in accordance with accepted silvicultural practices and guidelines

C. Coordinate vegetation management activities where practicable, desirable and feasible with adjacent lands. Consider the surrounding local landscape patterns during the development of project level plans.

D. Implement vegetation management on a 15-year planning cycle

E. Prioritize vegetation management to meet the following natural resource objectives :

    1. Meet rare species habitat and biodiversity goals

    2. Reduce the risks of catastrophic disturbances such as wildfires

    3. Restore and maintain native ecosystems

    4. Restore and maintain forest health

    5. Provide a sustainable flow of forest products and appropriate native biodiversity by balancing the age classes for each forest type

F. Select stands for meeting the above vegetation management objectives by further prioritization based on the following goals:

    1. Completing regeneration harvests in stands that have had previous work to establish or release existing regeneration

    2. Regenerating stands that are at imminent risk of mortality from insects, disease, and fire

    3. Establishing regeneration in poorly stocked stands or in stands that are currently stocked with species that are ill suited to the site

    4. Improving low quality stands

    5. Regenerating mature stands

6. Thinning immature stands

G. Annually manage on a 105-year rotation by establishing regeneration on approximately 0.59 % of the Active Forest Resource Management Areas (approximately 0.41% of total DSPR land base) and releasing existing regeneration (final removal of overstory) on approximately an equal amount of acreage with previously established regeneration

H. Manage approximately 13% (4,023 acres) of the forest vegetation in the Active Forest Resource Management Areas (approximately 9% of all DSPR lands in the SBK District) in an extended rotation (approximately 150 years).

   a. Select stands for extended 150 year rotation management systems in areas that complement Forest Reserves, trail and road corridors, aquatic buffers, and/or rare species habitats where possible

   b. Manage extended rotation stands according to uneven aged silvicultural principles to promote healthy, multi-age, large stand areas with complex structure

I. Manage approximately 13% (4,000 acres) of the forest vegetation in the Active Forest Resource Management Areas (approximately 9% of all DSPR lands in the SBK District) in an uneven age management extended rotation (approximately 150 years).

   a. Select stands for group or patch selection for uneven-age 150 year management systems in forest types such as northern hardwood, oak, and mixed oak/hardwood/conifer stands.

   b. Manage group or patch selection stands according to at least five (5) relatively equal entries to promote healthy, multi-age, and large forest stand areas with complex structure

J. Thin overstocked forest stands to maintain forest health and tree vigor in stands that have a high percentage of acceptable growing stock. The most productive sites should be given the highest priority for treatment.

The following referenced maps in Appendix B show potential (ceiling) timber harvest areas within the next 15 years under four different silvicultural systems – uneven age management, extended rotation, thinning and even age management (including regeneration and final removal harvests).

Supporting Maps: Appendix B, #9, 18, 27, 36, 45, 54, 63, 72, 81, 90 Property Level – Potential Timber Harvests

Wildlife and Structural Guidelines:

Where forest vegetation management occurs, the following guidelines apply:

A. Retain on average at least one live, large diameter (where possible >18" dbh) cavity or den tree per 5 acres up to a maximum of three trees per acre either as individuals, or 1/4 to 1/3 acre groups or islands for cavity nesting species. A greater number of trees should be left in riparian areas. Retain 2-5 smaller diameter cavity trees where possible.

B. Retain as many snags and stubs as possible in harvested areas in compliance and consideration of O.S.H.A. "Danger Tree" regulations

C. Retain on average one of the oldest, largest diameter, well formed, dominant trees (where possible > 18" dbh) per acre in harvested areas to serve as legacy trees

D. Maintain at least one cord (85 cubic feet) per acre of down coarse woody debris (material 5" or greater at the tip and at least 4' long) for ground dwelling amphibians, mammals, insects, and nutrient recycling. When available, highest priority will be given to leaving large, cull logs that will remain for long periods of time.

E. Provide a diversity of horizontal and vertical forest structures by retaining both individuals and groups of trees during final release regeneration harvests and by protecting desirable advanced regeneration

C. Water and Soil Resources in Active Forest Resource Management Areas

(1) Present Condition of Water and Soil Resources in Active Forest Resource Management Areas

The lands in the SBK have a variety of water related features such as streams, rivers, ponds, lakes, marshes, wetlands, and vernal pools. Rare mussels live in some of the moderately flowing portions of streams where there are firm sands and cobbles. In steeper, more rapid streams, ledge outcrops and cobble-bottoms provide specialized habitat for rare aquatic plants. Here the fast-flowing cold water supports diverse communities of invertebrates, which in turn support coldwater fish communities.

Forests provide a very effective natural buffer that holds soil in place and protects the purity of our water. The trees, understory vegetation, and the organic material on the forest floor reduce the impact of falling rain and help to insure that soil will not be carried into streams and waterways.

All Municipal watershed areas and 1830 forested lands (forested lands that have not ever been cultivated) are identified as "High Conservation Value Forest" according to the Forest Stewardship Council Northeast Standards for sustainable and well managed forests.

The following table shows the acreage of lands within 100 feet of a stream, wetland, lake, pond, or other aquatic feature by facility.

SITE_NAME	Acres
APPALACHIAN TRAIL CORRIDOR	49
ARTHUR WHARTON SWANN SF	111
BASH BISH FALLS STATE PARK	31
BEARTOWN STATE FOREST	721
CAMPBELLS FALLS STATE PARK	66
CLAM LAKE F.C. SITE	114
COOKSON STATE FOREST	833
EAST MOUNTAIN STATE FOREST	42
FOUNTAIN POND PARK	15
GRANVILLE STATE FOREST	318
JUG END STATE RESERVATION & WMA	59
MT EVERETT STATE RES	107
MT WASHINGTON STATE FOREST	315
OTIS STATE FOREST	734
SANDISFIELD STATE FOREST	749
SILVER BROOK NORTH F.C. SITE	52
SILVER BROOK SOUTH F.C. SITE	36
TOLLAND STATE FOREST	1462
Grand Total	**5811**

The soils on the SBK lands have been grouped into nine forest productivity classes, based on the soil texture, drainage rate, available moisture and slope position. Productivity classes relate to the amount of forest biomass that can be grown on the soils. All class 1, 2, and 3 soils are considered highly productive. Although productivity classes are based on biomass production, studies have also shown that more productive soils also support a higher level of biodiversity. Soil productivity classes are further modified by a wetland or poorly drained "wet" modifier. These resulting nine classes are defined in the table below:

Class	Name	White Pine Ft^3 /ac/year	White Pine Site Index	Red Oak ft^3 /ac/year	Red Oak Site Index	Acres in District
0	Non-forested	0	0	0	0	66,777
1	Prime 1	>155	>70	>55	>65	40,464
2	Prime 2	120-154	60-69	45-54	60-64	57,668
3	Prime 3	85-119	50-59	40-44	55-59	43,744

3W	Prime 3 – Wet	85-119	50-59	40-44	55-59	4,411
S	Statewide Importance	65-84	45-49	35-39	50-54	81,313
SW	State Importance - Wet	65-84	45-49	35-39	50-54	1,651
L	Local Importance	<65	<45	<35	<50	17,577
LW	Local Importance - Wet	<65	<45	<35	<50	4,026
U	Unique	N/A	N/A	N/A	N/A	0
X	Data Unavailable	N/A	N/A	N/A	N/A	22,419

Supporting Maps:

Appendix A, #6 Southern Berkshire District – Watersheds, Public Water Supply and Surface Water Supply Protection Zones A, B and C

Appendix B, #7, 16, 25, 34, 43, 52, 61, 70, 79, 88 Property Level - Prime Soils

(2) Desired Condition of Water and Soil Resources in Active Forest Resource Management Areas

The desired condition is a forest that promotes and maintains the integrity of healthy, functioning aquatic ecosystems, vertebrate and invertebrate populations, water chemistry, nutrient input, and instream structure.

The desired condition is a forest where soils are conserved and managed for long term productivity. Practices will be designed to keep as much forested land as possible in a productive status, minimize erosion, displacement, compaction, and rutting, and provide for nutrient recycling. The loss of calcium and other limiting nutrients will be monitored on a regional scale.

(3) Management Guidelines for Water and Soil Resources in Active Forest Resource Management Areas

A. Meet rare species habitat needs and MA Forestry Best Management Practices requirements

B. Manage areas around all vernal pools (certified and non-certified) according to the "Guidelines for Timber Harvesting near Vernal Pools". In addition apply the following restrictions:

    1. Pool Depression: Keep tops and slash out of the pool depression.
    2. From zero to 50 feet from the edge of the pool: No equipment is allowed to operate in this area. Logs should be winched or felled from this area.
    3. From zero to 100 feet: Only partial cuts are allowed. Maintain shading and acceptable microclimates for amphibians. The vegetative composition within the buffer should favor older mature hardwood species.

4. From zero to 200 feet from the pool edge: Avoid operating in conditions that would create ruts deeper than 6 inches, and minimize disturbance of the leaf litter and forest floor.

C. Promote and provide for the present and future recruitment of large diameter coarse woody debris in filter strips

D. Maintain soil processes by providing for the recruitment of organic inputs and minimizing erosion

E. Minimize the number of roads, skid trails, and landings

F. Require that landings and main skid roads be stabilized and graded at the end of any operation

G. Require that all petroleum products, industrial chemicals, and hazardous materials be stored in accordance with manufactures specifications, and at a minimum in durable sealed containers

H. Require that all petroleum spills be reported to the appropriate Management Forester. Petroleum spills of less than 10 gallons will be remediated through removal and proper disposal off-site. Petroleum spills of 10 gallons or more require verbal notification of the Massachusetts Department of Environmental Protection (MassDEP) within 2 hours of gaining knowledge of the spill. To notify MassDEP, call its Emergency Response section at the toll-free 24 hour statewide number: 1-888-304-1133.

I. Prohibit the use of harvesting machinery during the typical mud season (March 15 to May 15) or wet periods unless waived by the forester

J. Protect highly sensitive or wet soils by limiting activities to period when the ground is frozen or dry to prevent a reduction in site productivity and/or requiring equipment that minimizes impacts to these soils

K. Manage soils on a sustainable basis by minimizing erosion, compaction and displacement.

D. Cultural Resources in Active Forest Resource Management Areas

(1) Present Condition of Cultural Resources in Active Forest Resource Management Areas

Cultural resources are important artifacts of past human behavior and a wide variety of State and Federal legislation has been passed to provide for their protection. Cultural

resources include historic buildings (homesteads, mills, churches etc), structures (dams, roads, stone walls, etc.), and archaeological sites (prehistoric and historic).

DSPR's Cultural Resource Management program is designed to ensure that future generations will have the opportunity to understand, appreciate, and learn about the past. The Department is determined to implement the existing preservation laws in a timely manner in order to properly manage the cultural resources within its State and Urban Parks system.

The Southern Berkshire District (SBK) contains numerous examples of the full range of cultural resources. To assist property managers and foresters a Cultural Resource Sensitivity Map has been produced for each property within the SBK. Each map is based on what is known as Archaeological Site Location Criteria, which in turn is based on soil drainage characteristics, a location's proximity to a fresh water source, and the degree of slope of the location. The resulting maps show archeological sensitivity "bubbles" where further review and limitations may be necessary before a project can proceed. Specific information on the cultural resources for each property may be found in Appendix G on Cultural Resource Protection and its accompanying tables.

Supporting Maps:

Appendix B, #8, 17, 26, 35, 44, 53, 62, 71, 80, 89 Property Level – Archeologically Sensitive Areas

(2) Desired Condition of Cultural Resources in Active Forest Resource Management Areas

The desired condition is to identify, and evaluate the condition and significance of cultural resources within the properties for which DSPR provides stewardship. Based on this initial set of findings, plans to protect and maintain significant cultural resources within the SBK state forest and parks lands will be formulated. In some cases, cultural resources may be enhanced through specific management activities or presented to the visiting public through interpretative, educational, and programmatic formats.

(3) Management Guidelines of Cultural Resources in Active Forest Resource Management Areas

A. Identify projects that could have potential impacts to cultural resources should they exist within the limits of the proposed projects

B. Prepare and submit the silvicultural prescription or project scope to DCR's staff Archaeologist for review during the proposed silvicultural or project planning stages if all or a part of the project falls within an archeological sensitivity "bubble". The Archaeologist will determine whether known, or potential, cultural resources may exist and what management enhancements, limitations and/or

restrictions may be necessary to implement the proposed project and protect the cultural resources at the same time.

C. Protect cultural resources on all projects by:

1. Incorporating the DCR Archaeologist's recommendations for managing (protecting, restoring, maintaining and interpreting) potential and existing cultural resources into the stand's harvest prescriptions or project scope

2. Prohibiting activities that disturb the integrity of known cultural resources or which could have an adverse affect if they did exist (i.e., potential sites)

3. Minimizing soil disturbance (compaction, displacement, rutting) inside the archeological sensitivity "bubbles". Typically this will include limitations/restrictions on the season of the year during which the harvest or project can occur and/or the types of equipment/machinery that can be employed

4. Minimizing creation of new openings in stone walls. Repair any necessary opening(s) following the completion of the operation or stockpile removed stones if the opening will be used in the future

5. Slash should not be placed within cellar holes or on foundations

6. Avoiding the placement of landings within 25 feet of cellar holes where possible

7. Capping abandoned open wells in a manner that maintains the integrity of the historic feature

8. Interpret cultural resources for programmatic and educational purposes dependant upon significance, feasibility and funding

9. Maintain or enhance cultural resources through careful vegetation management and the removal of woody debris when recommended by DSPR's staff Archaeologist

E. Forest Health and Protection in Active Forest Resource Management Areas

(1) Present Condition of Forest Health and Protection in Active Forest Resource Management Areas

Forests contain a variety of natural and human influenced damaging agents that may affect long-term forest health such as insects, diseases, fire, wind, snow, ice, and non-native invasive species.

The current major forest health issues in the SBK are:

- Hemlock woolly adelgid (HWA)
- Ash Decline
- Beech Bark Disease
- Armillaria Fungus
- Diplodia Fungus
- Gypsy Moth and Tent Caterpillar Outbreaks
- Red Pine Scale
- Emerald ash borer (potential future threat)
- Sudden oak death (potential future threat)
- Asian long-horned beetle (potential future threat)
- Sirex wood wasp (potential future threat)
- Non-native invasive species

A complete inventory of invasive exotic plants currently does not exist for the SBK District but most common invasive plants are present and include:

Trees
Black Locust
Norway maple

Shrubs and Vines
Oriental bittersweet
Japanese barberry
Black Shallow-wort
Shining and Common Buckthorn
Japanese Honeysuckle
Morrow's Honeysuckle and other shrub honeysuckles
Autumn Olive
Multiflora Rose

Herbaceous Plants and Perennials
Goutweed or Bishop's Weed
Yellow Iris
Japanese Knotweed
Purple Loosestrife
Garlic Mustard

Most forests including those in the SBK District are relatively resistant to catastrophic fire and of low fire risk. Historically, Native Americans burned certain forests to improve early successional habitat for hunting. In modern times, fires most often result from careless human actions.

Although not a prime influence in these forests, the risk of unintentional and damaging forest fires can increase as a result of accumulation of naturally dying vegetation in periods of drought and logging activity if the slash (tree tops, branches, and debris) is not treated correctly. Adherence to the Massachusetts slash law minimizes this risk. Under the law, slash is to be removed or modified in buffer areas near roads, boundaries, and critical areas and lopped close to the ground to speed decay.

Depending on the fuel types, fire risk and habitat goals for the site-specific area, fire can be considered as a management tool to favor certain species of plants such as oak, provide habitat for wildlife such as ruffed grouse or reduce the risks of hazardous fuel accumulation.

According to the Massachusetts Climate Protection Plan (See Appendix J): "Climate change could have serious impacts on the state's diverse ecosystems, native species and may encourage the spread of non-native species. It would also likely alter the natural range of many different plants and animals. Over the long term, warming could intensify droughts and damage forest ecosystems". The SBK FRMP aims to provide a long-term sustainable strategy (105 years) and short term (next 15 years) implementation schedule. While the extent of the effects of climate change are not fully understood, the likely focus of many effects, in terms of non native species, damage to forest ecosystems or more droughts, are well known. This Plan has been designed to be anticipatory in the following ways:

- Recognizing the carbon sequestration benefits of young vigorously growing forests, the plan provides for a more balanced structure of age classes
- Without being able to predict the change in native forest ecosystems brought about by climate change, the plan focuses on sustainability and ecosystem function rather than species distribution
- The plan focuses attention on the problem of non-native invasive species, which will likely increase with continued climatic change

The state will continue its efforts to maintain existing forests, increase land conservation areas, and give incentives for native (non-invasive) reforestation of previously forested area. The amount of carbon stored or sequestered by these activities will be measured and monitored over time to ensure that real carbon benefits accrue, and to better understand the long-term benefits of such programs.

(2) Desired Condition of Forest Health and Protection in Active Forest Resource Management Areas

The desired condition is a healthy, diverse, native forest with a reduced occurrence of undesirable, non-native, invasive species.

The desired condition is a forest with a low threat of catastrophic fire and with the infrastructure to allow efficient response to wildfire and for the application of prescribed fire.

(3) Management Guidelines for Forest Health and Protection in Active Forest Resource Management Areas

Forest Insects and Diseases:

A. Conduct periodic surveys to identify and quantify forest insect and disease impacts

B. Prescribe integrated pest management approaches that treat high-risk stands - including the development of an Invasive Species Response Plan for invasive species of significant risk to forest resources

C. Implement the draft Massachusetts *Highly Destructive Forest Invasive Species Response Plan* for invasive species that pose a significant risk to forest resources

D. Address hemlock wooly adelgid (HWA) risk by:

1. Surveying hemlock stands with greater than 50% stocking of hemlock for the presence of HWA

2. Considering the selection of representative hemlock stands for long term protection from HWA by environmentally safe biological control and use of systemic pesticides

3. Considering hemlock stands for treatment (regeneration, thinning, or salvage) when the majority of the hemlock trees (greater than 50%) are infected with HWA

4. Considering hemlock stands for thinning to improve tree vigor and possible resistence to HWA infestion

5. Collecting hemlock seed from representative hemlock stands to be stored in genetic banks

Non-native Invasive Species:

A. Conduct periodic surveys to identify, map, and quantify impacts of non-native invasive species

B. Prescribe integrated and interdisciplinary approaches that treat existing populations while maintaining desirable native species

C. Take reasonable preventative measures during projects to limit the spread of existing populations and the introduction of new populations including inspection of all equipment prior to unloading at the job sites. If the management forester feels there is a threat of introduction of plant parts or seed the operator will be required to thoroughly clean the exterior, undercarriage, and tires/tracks of his/her equipment with a high-pressure washer at a maintenance facility prior to bringing the equipment on site. Cleaning will substantially reduce the chance of spreading invasive exotic plant seeds/roots from a previous work site.

Carbon sequestration:

A. Manage for native vigorous vegetative growth that will both increase carbon storage and shepherd adaptation to climate change over time.

B. Consider carbon resource management including age class representation as one criterion in the management plan of state forests and other public lands.

C. Support research on the role of controlled and uncontrolled forest fires in returning carbon to the soil rather than emitting it into the atmosphere.

Use of Pesticides:

A. Use pesticides only when there are no other practical alternatives

B. Apply pesticides according to product labels and by a licensed applicator

C. Monitor treatments for effectiveness and impacts on non-target species and areas

Salvage of Dead and Dying Forest:

A. Use salvage operations following standard operating forest management guidelines to reduce risk to human health and safety, fire risks or to reduce continued forest health threats when necessary

B. Consider pre-salvage operations to reduce risk to human health and safety, or address forest health threats

Fire

A. Inventory and maintain desirable fire roads and water drafting sites

B. Meet MA slash law requirements

C. Suppress wildfires to meet the following objectives:

1. Provide for the safety and well being of fire fighters and the public
2. Protect natural resource investments and private property
3. Use "Light Hand On The Land" prevention and suppression tactics
4. Coordinate suppression tactics with the natural resource desired conditions

D. Use mechanical treatments and prescribed fire to maintain natural communities; reduce the buildup of hazardous fuels; enhance conditions favorable to rare species or communities; establish desirable regeneration; and create habitat for early successional species

E. Maintain forest health to reduce forest mortality and subsequent build-up of fuels

F. Facilities, Transportation, and Boundaries in Active Forest Resource Management Areas

(1) Present Condition of Facilities, Transportation, and Boundaries in Active Forest Resource Management Areas

There are approximately 207 miles of roads and trails within the SBK properties. Generally, roads and trails are minimally maintained, resulting in unsafe access and degradation of water quality due to soil erosion and sedimentation. Some road and trail maintenance and re-construction is occurring through forest management activities, volunteers, and occasionally as part of DSPR projects. DSPR's goal is that the transportation network will be safe and environmentally sound. In addition, the network should have a minimum impact on the natural resources of our forest and park system while serving public safety needs and allowing visitors to enjoy and experience these resources.

The following table displays road and trail type with the condition and mileage summary by property:

Site Name	Type	Condition	Miles
APPALACHIAN TRAIL CORRIDOR	Forest Road/Trail	Good	0.1
APPALACHIAN TRAIL CORRIDOR	Trail	Good	4.2
APPALACHIAN TRAIL CORRIDOR	Trail	Fair	0.6
APPALACHIAN TRAIL CORRIDOR	Trail	Poor	0.6

ARTHUR WHARTON SWANN SF	Forest Road/Trail	Good	0.4
ARTHUR WHARTON SWANN SF	Forest Road/Trail	Fair	1.1
ARTHUR WHARTON SWANN SF	Public Road	Good	0.8
ARTHUR WHARTON SWANN SF	Public Road	Fair	0.9
ARTHUR WHARTON SWANN SF	Trail	Good	1.3
ARTHUR WHARTON SWANN SF	Trail	Fair	0.1
BASHBISH FALLS STATE PARK	Administrative Road	Good	0.3
BASHBISH FALLS STATE PARK	Administrative Road	Fair	0.1
BASHBISH FALLS STATE PARK	Trail	Fair	1.2
BASHBISH FALLS STATE PARK	Trail	Poor	0.1
BEARTOWN STATE FOREST	Administrative Road	Good	1.0
BEARTOWN STATE FOREST	Administrative Road	Fair	0.3
BEARTOWN STATE FOREST	Forest Road/Trail	Good	5.0
BEARTOWN STATE FOREST	Forest Road/Trail	Fair	3.1
BEARTOWN STATE FOREST	Forest Road/Trail	Poor	0.9
BEARTOWN STATE FOREST	Public Road	Good	5.8
BEARTOWN STATE FOREST	Public Road	Fair	7.9
BEARTOWN STATE FOREST	Trail	Good	17.2
BEARTOWN STATE FOREST	Trail	Fair	14.0
BEARTOWN STATE FOREST	Trail	Poor	6.0
CLAM LAKE F.C. SITE	Administrative Road	Good	0.8
CLAM LAKE F.C. SITE	Forest Road/Trail	Fair	0.4
CLAM LAKE F.C. SITE	Trail	Fair	0.1
COOKSON STATE FOREST	Forest Road/Trail	Good	6.5
COOKSON STATE FOREST	Forest Road/Trail	Fair	3.0
COOKSON STATE FOREST	Forest Road/Trail	Poor	1.3
COOKSON STATE FOREST	Public Road	Good	0.1
EAST MOUNTAIN STATE FOREST	Administrative Road	Good	0.6
EAST MOUNTAIN STATE FOREST	Forest Road/Trail	Good	0.3
EAST MOUNTAIN STATE FOREST	Forest Road/Trail	Fair	1.5
EAST MOUNTAIN STATE FOREST	Forest Road/Trail	Poor	0.1
EAST MOUNTAIN STATE FOREST	Trail	Good	2.5
EAST MOUNTAIN STATE FOREST	Trail	Poor	0.1

FOUNTAIN POND PARK	Trail	Good	0.6
FOUNTAIN POND PARK	Trail	Fair	0.2
GRANVILLE STATE FOREST	Administrative Road	Good	0.7
GRANVILLE STATE FOREST	Forest Road/Trail	Good	0.7
GRANVILLE STATE FOREST	Forest Road/Trail	Fair	1.7
GRANVILLE STATE FOREST	Forest Road/Trail	Poor	0.1
GRANVILLE STATE FOREST	Trail	Good	4.8
GRANVILLE STATE FOREST	Trail	Fair	5.0
GRANVILLE STATE FOREST	Trail	Poor	1.5
JUG END STATE RESERVATION & WMA	Administrative Road	Good	0.5
JUG END STATE RESERVATION & WMA	Forest Road/Trail	Good	1.2
JUG END STATE RESERVATION & WMA	Forest Road/Trail	Fair	1.7
JUG END STATE RESERVATION & WMA	Forest Road/Trail	Poor	0.6
JUG END STATE RESERVATION & WMA	Other	Fair	0.1
JUG END STATE RESERVATION & WMA	Trail	Good	1.6
JUG END STATE RESERVATION & WMA	Trail	Good	1.6
JUG END STATE RESERVATION & WMA	Trail	Fair	0.3
JUG END STATE RESERVATION & WMA	Trail	Poor	0.3
MT EVERETT STATE RES	Administrative Road	Fair	0.5
MT EVERETT STATE RES	Forest Road/Trail	Good	0.4
MT EVERETT STATE RES	Public Road	Good	1.0
MT EVERETT STATE RES	Trail	Good	7.4
MT EVERETT STATE RES	Trail	Fair	3.0
MT EVERETT STATE RES	Trail	Poor	0.7
MT WASHINGTON STATE FOREST	Forest Road/Trail	Good	0.8
MT WASHINGTON STATE FOREST	Forest Road/Trail	Fair	0.8
MT WASHINGTON STATE FOREST	Public Road	Good	0.1
MT WASHINGTON STATE FOREST	Trail	Good	4.5
MT WASHINGTON STATE FOREST	Trail	Fair	10.1
MT WASHINGTON STATE FOREST	Trail	Poor	2.4
OTIS STATE FOREST	Administrative Road	Fair	0.7
OTIS STATE FOREST	Administrative Road	Poor	0.1
OTIS STATE FOREST	Forest Road/Trail	Good	1.7
OTIS STATE FOREST	Forest Road/Trail	Fair	2.4

OTIS STATE FOREST	Forest Road/Trail	Poor	0.3
OTIS STATE FOREST	Public Road	Good	1.2
OTIS STATE FOREST	Public Road	Fair	1.0
OTIS STATE FOREST	Trail	Good	3.2
OTIS STATE FOREST	Trail	Fair	5.3
OTIS STATE FOREST	Trail	Poor	1.0
SANDISFIELD STATE FOREST	Administrative Road	Fair	0.8
SANDISFIELD STATE FOREST	Administrative Road	Poor	0.5
SANDISFIELD STATE FOREST	Forest Road/Trail	Good	1.3
SANDISFIELD STATE FOREST	Forest Road/Trail	Fair	1.4
SANDISFIELD STATE FOREST	Forest Road/Trail	Poor	0.1
SANDISFIELD STATE FOREST	Public Road	Good	3.3
SANDISFIELD STATE FOREST	Public Road	Fair	0.5
SANDISFIELD STATE FOREST	Trail	Good	1.5
SANDISFIELD STATE FOREST	Trail	Fair	3.0
SANDISFIELD STATE FOREST	Trail	Poor	1.2
SILVER BROOK NORTH F.C. SITE	Administrative Road	Good	0.3
SILVER BROOK NORTH F.C. SITE	Administrative Road	Fair	0.2
SILVER BROOK SOUTH F.C. SITE	Administrative Road	Fair	0.1
TOLLAND STATE FOREST	Administrative Road	Good	0.3
TOLLAND STATE FOREST	Administrative Road	Fair	0.1
TOLLAND STATE FOREST	Administrative Road	Poor	0.3
TOLLAND STATE FOREST	Forest Road/Trail	Good	0.5
TOLLAND STATE FOREST	Forest Road/Trail	Fair	0.7
TOLLAND STATE FOREST	Forest Road/Trail	Poor	0.8
TOLLAND STATE FOREST	Public Road	Good	2.2
TOLLAND STATE FOREST	Public Road	Fair	6.5
TOLLAND STATE FOREST	Public Road	Poor	0.5
TOLLAND STATE FOREST	Trail	Good	4.7
TOLLAND STATE FOREST	Trail	Fair	8.6
TOLLAND STATE FOREST	Trail	Poor	6.7

There are approximately 276 miles of DSPR property boundaries (not including the newly acquired Spectacle Farm property). Approximately 72 miles of boundaries were recently maintained from FY 2004 to FY 2007. There are a small but undetermined number of miles of boundary that may need professional surveys. DSPR's goal is to locate and post all boundaries and maintain them on a 10-year cycle.

The following table displays boundary miles (perimeter) by property:

Site Name	Perimeter (in miles)
APPALACHIAN TRAIL CORRIDOR	9.7
ARTHUR WHARTON SWANN SF	5.9
BASHBISH FALLS STATE PARK	5.3
BEARTOWN STATE FOREST	48.1
CAMPBELLS FALLS STATE PARK	3.9
CLAM LAKE F.C. SITE	4.1
COOKSON STATE FOREST	14.4
EAST MOUNTAIN STATE FOREST	14.4
FOUNTAIN POND PARK	3.0
GRANVILLE STATE FOREST	10.5
JUG END STATE RESERVATION	0.9
JUG END STATE RESERVATION & WMA	9.3
MT EVERETT STATE RES	13.5
MT WASHINGTON STATE FOREST	20.2
OTIS STATE FOREST	39.1
SANDISFIELD STATE FOREST	29.3
SILVER BROOK NORTH F.C. SITE	2.4
SILVER BROOK SOUTH F.C. SITE	1.3
TOLLAND STATE FOREST	40.2
Total	**275.4**

(2) Desired Condition of Facilities, Transportation, and Boundaries in Active Forest Resource Management Areas

The desired condition of DSPR properties is that they are surveyed and properly maintained to protect the Commonwealth's natural resources and minimize private and public timber trespassing and encroachments by adjacent landowners.

The desired condition is a transportation network that is safe, effective, efficient and environmentally sound. The network should have the minimum impact necessary on the natural resources of our forest and park system while serving public safety needs and allowing visitors to enjoy and experience these same resources.

(3) Management Guidelines for Facilities, Transportation, and Boundaries in Active Forest Resource Management Areas:

Roads:

A. Minimize the number of roads, skid trails and landings

B. Require that staging areas, landings and main skid roads be stabilized and graded at the end of any operation

C. Require that all petroleum products, industrial chemicals, and hazardous materials be stored in accordance with manufactures specifications, and at a minimum in durable sealed containers

D. Prohibit the use of harvesting machinery during the typical mud season (March 15 to May 15) or wet periods unless waived by the forester

E. Protect highly sensitive or wet soils by limiting activities to period when the ground is frozen or dry to prevent a reduction in site productivity and/or requiring equipment that minimizes impacts to these soils

F. New road construction permitted in stable areas only when necessary

G. Commercial timber management including salvage is allowed within road corridors.

H. Forest management within the road corridors will be designed to promote native diverse vegetation, large-diameter trees, multiple age classes and forest structures, healthy forest, safe recreation experience, and quality scenery.

I. No slash should remain within 25 feet of roads.

J. Natural resource managers will coordinate with park supervisors and user groups when vegetation management is planned.

K. Skid roads and truck roads will be carefully laid out by the forester considering grades, drainage and stream integrity

L. Inventory and maintain desirable fire roads and water drafting sites

M. Minimize road width to only what is necessary

N. Encourage canopy cover over roads

O. Minimize road shoulder clearing width for safe passage and provide minimal necessary fire breaks

P. Minimize adverse migratory effects on wildlife through properly designed and maintained roads and structures (cut and fill banks, culverts, and ditches)

Q. Maintain roads in accordance to the Departments road classification system and maintenance policy

R. Consider the use of in-kind services to provide for road maintenance during project planning and implementation

S. Coordinate and cooperate with municipal officials on the management of roads and ownership of timber within road right-of-ways

Boundaries:

A. Identify all boundaries needing formal surveys

B. Survey boundaries needed for project implementation, trespass, or where there are disputes; other boundaries needing to be surveyed will be done upon the availability of funding and where feasible

C. Locate and maintain all boundaries on a 10 year cycle or when needed for project implementation

D. Identify and maintain all boundaries clearly and in a way that is sensitive to adjacent private lands with visible residences

E. All newly acquired DSPR properties should have their boundaries surveyed and marked and interior line DSPR boundaries should be obliterated

5. Special Features and Natural Communities

A special feature is a broad term to cover all those areas that contain unique ecological, aesthetic, or historic features, but are not covered under any of the previously sections. Examples include large rock ledges, research areas, historic agricultural landscapes, gorges, cliffs, and rich mesic forests.

All rare natural communities are identified as "High Conservation Value Forest" according to the Forest Stewardship Council Northeast Standards for sustainable and well managed forests.

The variety of these areas requires that management options be adaptable to protect, conserve, or promote their values

The following special features exist in the SBK district:

- Natural Communities
- Ledges and Cliffs
- Gorges
- Open Fields
- Agricultural Landscapes
- Research Areas
- Waterfalls
- Mountaintop Habitat

SBK Natural Communities:

Natural communities are assemblages of species that occur together in space and time. These groups of plants and animals are found in recurring patterns that can be classified and described by their dominant biological and physical features, as done in NHESP's *Classification of Natural Communities of Massachusetts*. Natural communities tend to be more finely described than are the broad forest types, and include non-forested assemblages. Natural communities may be restricted or widespread in their distribution across the state, and they may be naturally large or small. NHESP has a ranking system that reflects statewide abundance of the types of natural communities. An additional system sets criteria for ranking quality of each type of natural community. NHESP uses the combined ranking systems to track different types of natural communities for conservation prioritization. Most occurrences of the least common types and the best of the most common types are of interest.

A large, heterogeneous, matrix forest usually contains a mix of natural community types, with multiple occurrences of small patch communities, examples of larger patch types, and examples of the surrounding, prevailing, matrix forest. However, the dynamic nature of communities is such that those in individual areas are expected to change over time. In reserves, there should be space for change and movement of community types so that over the long term, all types can continue to occur. Large animals often make use of multiple communities in mosaics as parts of their habitats. This report's section on Biodiversity addresses the idea of the coarse filter approach to protecting appropriate native biodiversity, and the sections on Water and Soil Resources focus on the physical features that provide diversity of habitat. These sections compliment the ideas of identifying and managing natural communities that in turn supplement the larger view of forest resource management to maintain the state's appropriate native biodiversity.

(1) Present Condition

The lands in the SBK support a variety of types of natural communities occurring in the varied conditions of the hills, slopes, valleys, wetlands and waters of the district. While all areas of the district have not been fully inventoried for uncommon natural communities, several types of particular interest are known in the SBK, including on DCR lands. Calcium rich wetlands of the Berkshire Marble Valleys are particularly important statewide and support very uncommon natural communities and rare species. Other natural communities that develop on ridge tops, ledges, cliffs, talus slopes, seeps,

floodplains, riparian zones, wetlands, and in gorges (some mentioned in the special features section of this report) are often uncommon types of natural communities that NHESP considers priority for conservation. Rich Mesic forests, a particularly species rich type of forest community, are best developed in the Marble Valleys and have good examples in SBK.
The following tables list the NHESP natural communities currently known (2005) from DCR lands in the SBK, and those known from the entire district, any of which might also occur on DCR lands. NHESP tracks all types of natural communities ranked S1, S2, and S3, as well as exemplary (best) occurrences of S4 and S5 types. Types are defined in the *Classification of the Natural Communities of Massachusetts,* version 1.3, each with its S-rank, and the S-ranks are defined there in detail.

NHESP Rare Natural Communities known from DCR lands in Southern Berkshires:

Natural Community	NC Type	Year Last Seen	State Rank
Calcareous seepage marsh	Wetland	1991	S2
Hickory – hop hornbeam forest/woodland	Upland	1998	S2
High-energy riverbank	Wetland	2000	S3
Rich, mesic forest community	Upland	1998	S3
Ridgetop pitch pine – scrub oak community	Upland	1998	S2
Spruce-tamarack bog	Wetland	2000	S2
Certified vernal pool	Other (Ecological)	2000	Not ranked

Natural Communities are not regulated. S (state abundance) ranks are on a 1 to 5 scale, with S1 being considered vulnerable, generally having 1 to 5 good occurrences, and S5 being demonstrably secure. Community types ranked S1, S2, and S3 are priority for conservation protection.

NHESP Rare Natural Communities known from Southern Berkshires generally:

Natural Community	NC Type	Year Last Seen	State Rank
Acidic shrub fen	Wetland	1998	S3
Black ash-red maple-tamarack calcareous seepage swamp	Wetland	1999	S2
Calcareous basin fen	Wetland	1991	S1
Calcareous forest seep community	Upland	2000	S2
Calcareous pondshore/lakeshore	Wetland	1999	S2
Calcareous rock cliff community	Upland	2000	S3
Calcareous rocky summit/rock outcrop community	Upland	2001	S2
Calcareous seepage marsh	Wetland	1999	S2
Calcareous sloping fen	Wetland	1997	S2
Calcareous talus forest/woodland	Upland	2000	S3
Circumneutral talus forest/woodland	Upland	2000	S3
Hickory - hop hornbeam forest/woodland	Upland	2001	S2
High-energy riverbank	Wetland	2000	S3

Kettlehole level bog	Wetland	1998	S2
Level bog	Wetland	1998	S3
Major-river floodplain forest	Wetland	1999	S2
Rich, mesic forest community	Upland	1998	S3
Ridgetop pitch pine - scrub oak community	Upland	2001	S2
Small-river floodplain forest	Wetland	1999	S2
Spruce-tamarack bog	Wetland	2000	S2
Transitional floodplain forest	Wetland	1997	S2
Yellow oak dry calcareous forest	Upland	2000	S2
Certified vernal pool	Other (Ecological)	2006	Not ranked

Natural Communities are not regulated. S (state abundance) ranks are on a 1 to 5 scale, with S1 being considered vulnerable, generally having 1 to 5 good occurrences, and S5 being demonstrably secure. Community types ranked S1, S2, and S3 are priority for conservation protection.

No additional natural communities have been entered into the NHESP records as of 12/21/07, the list is the same as above.

(2) Desired Condition

The desired condition is a landscape where special features and natural communities are appropriately valued, protected, conserved, and managed where necessary. In addition, DCR staff will work cooperatively with the Natural Heritage and Endangered Species Program to identify areas with possible priority natural community occurrences (for example from aerial photo interpretation, CFI data, or ongoing forestry surveys). In addition, restoration and/or maintenance of known priority natural community occurrences will be jointly undertaken where feasible (for example, removing exotic invasive species, or conducting prescribed fires in appropriate community types and locations).Removing plantations, as discussed in the Native Vegetation section, will generally enhance native communities.

(3) Management Guidelines

Natural Communities

A. Inventory, record, map, evaluate, and monitor uncommon or priority natural communities.

B. Management of priority natural communities will be with ecosystem function in mind, for example, downed wood and old snags will remain, and streams that naturally flood will be allowed to do so where possible. Prescribed fire and fire management plans should be instituted to maintain fire controlled natural communities where appropriate and possible.

C. Rich mesic forests and other nutrient rich communities are highly sensitive to disturbance and the possible introduction of non-native invasives. Management will be restricted to the removal of non-native species and silvicultural will be restricted to techniques to promote multi-age, native forests with minimal disturbance.

D. Management of the non-forested and low productive natural communities within the generally forested landscape will recognize their special habitat values and susceptibility to human mediated disturbance.

E. In general small patch communities will be managed with measures necessary to protect the values of the special features that support the natural communities.

Agricultural landscapes include old fields, pastures, and fencerows. These landscapes will be recognized and promoted through management such as regular mowing and field restoration where possible. In general:

A. Larger fields are more valuable than smaller fields

B. Mowing should be restricted until after July 15 to allow ground nesting birds time to fledge

C. Trees encroaching on fields should be removed or pruned to maintain the historical landscape and field values

D. Fence rows provide valuable habitat but can also be a source of invasive exotics

E. Historic fields should only be cleared and restored when they are large and the value of the new habitat outweighs possible fragmentation

Ledges and cliffs provide unique habitat and aesthetic values. Many species use these areas for nesting, feeding or basking sites, and people are attracted to these areas for recreational activities or the views they provide. In general:

A. Management in these areas should promote multi-age native forests

B. Ground skidding or other activities that could alter the hydrology or physical structure of these areas should be avoided

C. Clearing of vegetation for views will be allowed where ecological function is not impacted

D. In some cases vegetation may be cleared if it promotes habitat values such as basking sites for reptiles

Research areas are managed under special use permits and cooperative partnerships are encouraged to further our collective knowledge of ecosystem functions and processes.

Gorges and special water features such as waterfalls provide unique habitat and recreational values. In general, these areas will be managed in accordance with streamside BMPs. There may be cases where more restrictive measures are necessary to protect the values of these special features. In the SBK District all sites included in this category are located within Reserves and will be managed only to provide for public safety.

Mountaintop habitats are found primarily in the Mt Washington/ Mt Everett area. They include areas of scrub oak, stunted hardwoods and blueberry/ huckleberry. Also included are small stands of very rare stunted pitch pine. Most are included in the Mt Washington Reserve.

A. Generally these stands are self sustaining and require no management. The stands will be monitored and a variety of interventions including prescribed fire or removal of competing trees will be allowed if necessary.

B. Active management of pitch pine stands may be necessary to control competing hardwoods. Any management will be the result of consultation with qualified ecologists.

VII. Measurable Outputs and Costs

The Department of Recreation and Conservation, Bureau of Forestry partially fulfills its mission of providing income from the sale of forest products through the use of silvicultural practices designed to balance ecological, social and economic considerations. The enabling legislation that created the Bureau of Forestry states that the State Forests shall be "in perpetuity income producing". This legislation goes on to say that the Bureau shall manage to "improve" these forests. It is this balance that is at the heart of the Bureau's mandate and its social responsibility. Under M.G.L. Chapter 132, the Commonwealth's Bureau of Forestry exists to protect the publics' interest in the both the private and public forestlands of Massachusetts. These public interests include water conservation, flood and soil loss prevention, wildlife habitat, recreation, protection of water and air quality, and a continued and increasing supply of forest products. The Department provides for forest products in an ecologically and socially responsible and environmentally sensitive manner.

The Department meets its responsibility by focusing on desired conditions for all resources. A desired condition is simply a statement describing the desired biological, physical and/or social condition or context. The Department will consider silvicultural options to modify existing stand conditions in order to meet desired vegetative conditions.

The Department fulfills its mission to provide forest products by designing silvicultural operations in which timber products are offered for sale to private contractors. Not only does this provide direct income to the Commonwealth, but the "value added" results of processing these products also benefits many sectors of the Massachusetts economy. All harvesting is done in a manner that meets appropriate native biodiversity needs, is socially responsible and can occur in a long-term sustained manner. The SBK is part of the state lands system that has been "green certified" as sustainable forest management based on the Forest Stewardship Council principles and verified by an independent audit team - Scientific Certification Systems.

(1) Outputs:

Historical Forest Product Outputs:

Total DSPR Acres in SBK:[10]			42,965
Active Forest Resource Management Area Acres:	31,753		
Number of Forest Products Sales 1993-2007:		108	
Total Acres Treated 1993-2007:			2,104
Average Annual Acres Treated 1993-2007		140	

[10] Includes 904 acres for Spectacle Farm

Total Volume Harvested 1993-2007: & 3,890 Cords	10,367 MBF,
Average Annual Volume Harvested 1993-2007 Cords	691 MBF, 259

Maximum Potential (Ceiling) Sustainable Area Managed and Expected Forest Product Output:

Treatment	Acres	Cords	MBF
Extended Rotation[11]	0	0	0
Hardwood Uneven Age Management	27	162	378
Hardwood Final Removal of Overstory	100	672	1049
Softwood Final Removal of Overstory	69	591	1201
Hardwood Establish Regeneration	100	452	352
Softwood Establish Regeneration	69	385	394
Hardwood Thinning*	536	1227	858
Softwood Thinning*	234	695	632
Grand Total	**1,135**	**4,184**	**4,863**

15 year Planning Cycle Outputs (2007 – 2021):

Treatment	Acres	Cords	MBF
Extended Rotation	0	0	0
Hardwood Uneven Age Management	405	2430	5670
Hardwood Final Removal of Overstory	1500	10080	15735
Softwood Final Removal of Overstory	1035	8865	18015
Hardwood Establish Regeneration	1500	6780	5280
Softwood Establish Regeneration	1035	5775	5910
Hardwood Thinning*	8040	18412	12864
Softwood Thinning*	3510	10425	9477
Grand Total	**17,025**	**62,766**	**72,951**

Volumes calculated from CFI inventory data.

* - Thinning is based on all stands within the Active Management Area that are at or above the

"A" stocking level (overstocked stand)

[11] Regeneration is not scheduled during this 15 year planning period, however, thinnings may be scheduled to maintain species composition, growth rates and tree vigor

Presently there is a capacity to implement to the FRMP standards approximately 20 percent (225 acres) per year of the annual sustainability ceiling of 1,135 acres.

Approximate Annual Revenue $655,000

(2) Proposed Annual Operating Costs

Annual Operation Costs	**Number**
Forester(s) $100,000	2[12]
Contract Forester(s) $40,000	2
Vehicles $12,000	2
Supplies and Equipment $5,000	
Road Maintenance $30,000	
Boundary Maintenance $25,000	
Annual Monitoring $5,000	
Invasive Species Control $25,000	
Total Annual Operating Costs $242,000	
Backlog Annual Boundary Surveying	$25,000
Backlog Road Maintenance Needs	$150,000
10-year CFI Inventory (2010) $50,000	

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[12] Currently there is one full time Forester in the SBK District with one Assistant Forester position vacant

VIII. Inventory, Monitoring, and Evaluation

The Department is committed to the principles of adaptive management. Adaptive management uses the best information available to make decisions on the management of the DSPR system lands, monitors the results for effectiveness, and uses new information as it becomes available. The following is a summary of adaptive management inventory procedures for the SBK District:

A. Project Level

1. Inventory:

    a. Initiate all management projects with a general walk through of areas most likely to meet objectives (see individual property appendices – Management Practices)

    b. Collect data on vegetation when needed to quantify stocking level, species composition and quality of overstory and regeneration to include in project and silvicultural prescriptions

    c. Inventory selected area for cultural resources

    d. Inventory selected area for rare landforms, habitats, and species

    e. Inventory selected area for invasive species

2. Monitoring:

    a. During treatment monitor for:

        i. Best Management Practices compliance

        ii. Road and Infrastructure Condition

        iii. Natural Heritage Requirements

        iv. Cultural Resource Protection

        v. Silvicultural Prescription

        vi. Forest Product Accountability

        vii. Other Contractual Requirements

    b. Post Treatment (approximately 5 years after treatment) for:

i. Forest health

ii. Regeneration success and composition

iii. Best Management Practices

iv. Invasive species

v. Unauthorized ORV, Forest Reserves

vi. Road and boundary conditions

3. Evaluate:

    a. Contractor performance

    b. Departmental personnel performance

    c. Fulfillment of FRMP and silvicultural objectives

    d. Effectiveness of the treatment

B. Management Forestry District Level

1. Inventory (By 2020 and every 15 year planning cycle):

    a. Re-measure Bureau's Continuous Forest Inventory plots

    b. Road conditions

    c. Boundary Condition

2. Monitor (By 2020 and within every 15 year planning cycle):

    a. Forest health

    b. Biodiversity

    c. Regeneration

    d. Best Management Practices

    e. Invasive species

    f. Unauthorized ORV, Forest Reserves

g. Road and boundary conditions

h. Forest Reserves

i. New information

j. New public issues

k. Unauthorized digging and collecting around historic archaeological sites and features

l. Soil productivity including the loss of nutrients such as calcium

m. Ecological monitoring at the landscape, stand and species level to compare biodiversity in Forest Reserves and active management areas

3. General Program Management Review (at District level every 5 years)

    a. Plan implementation

    b. Monitoring and Evaluation Efforts

    c. Currency of FRMP

    d. Public Involvement

    e. Relationships with others

4. Evaluation: Information will be evaluated against the desired condition of the FRMP to determine the effectiveness of the Plan and the need to update it. A report will be prepared summarizing the results. This report will consider if:

    a. Additional treatments are needed to meet the desired conditions

    b. Desired conditions need to be modified because of survey, inventory, or new information

    c. Existing management guidelines are effective and complete

    d. Any new information, research or new issues need to be considered.

IX. Public Involvement

The State Forests and Parks are public resources and must be responsive to societal needs while using the best available science and maintaining options for future generations. Public involvement is critical to Forest Resource Management Planning and implementation. Public involvement is an ongoing process that consists of gathering input, analyzing, evaluating and responding to input and sharing information. The Bureau will be responsible to stakeholders through the public involvement process, implementation, evaluation, and reporting.

A. Project Level

1. Meet all regulations for review of projects. This will include review of all projects by conservation commission, select boards.

2. Consider public comments (Appendix K) as they relate to project level prescriptions

B. Property Level

Berkshire Ecoregional meeting: 11/22/2004
Number attending: 55

SBK Draft Forest Resource Management Plan meeting: 2/1/2007
Number attending: 12

Notify the public through the Environmental Monitor if there is a need to update the SBK plan. The notice will include specific FRMP proposed changes with rationale.

Develop and publish for review a SBK Stakeholders Report within 10 years from the approval of the SBK plan to track implementation efforts and share the results of monitoring and evaluation.